Optimum Plan

Franks Tract State Recreation Area

Contra Costa County, California

prepared for:
California Department of Parks & Recreation

by:
East Bay Regional Park District

with funding assistance from:
Bethel Island Municipal Improvement District
California Department of Boating & Waterways
California Department of Water Resources

consultant team:
Roberts Associates

assisted by:
Ironside & Associates
Environmental Science Associates
Larry Davis, P.E.

Acknowledgements

The Consultant Team is sincerely indebted to the many individuals, groups and agencies who have contributed so generously to this Study. We are particularly indebted to the citizens who so actively and generously participated at The Community Workshops.

We wish to thank the following individuals for their assistance and comment:

California Department of Parks and Recreation

William Briner, Director
James Neal, Deputy Regional Director
David E. Bartlett
James Peat

East Bay Regional Parks District

David E. Pesonen, General Manager
Dennis Beardsley, Project Coordinator
Lewis Crutcher
Rosemary Cameron

Bethel Island Municipal Improvement District

Howard Holmes

California Department of Boating and Waterways

Ivar Plescov

California Department of Fish and Game

Patricia Perkins
Don Beauchamp

California Department of Water Resources

A.G. "Bud" Thrapp
Peter D. Rabbon

Contra Costa County

James W. Cutler
Paul E. Kilkenny

CONSULTANT TEAM

Roberts Associates

Robert S. Sena, Principal in Charge
Maureen Armbruster
Dan Hodapp
Leslie H. Simons

Ironside & Associates

Robert L. Ironside

Environmental Science Associates

Nona Dennis
Michael Marangio

Larry Davis, P.E.

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I. Introduction

In September, 1985 the East Bay Regional Park District selected a planning team led by Roberts Associates to prepare a plan for the Frank's Tract State Recreation Area. The District had contracted with the State Department of Parks and Recreation to determine the educational, recreational and preservation potential of the Area. This plan by Roberts Associates satisfies the District's obligation under that contract.

The study is funded jointly by the Department of Parks and Recreation, Department of Water Resources, Department of Boating and Waterways, Bethel Island Municipal Improvement District, and the East Bay Regional Park District.

The purpose of the study is to carry out the Declaration of Purpose adopted for the State Recreation Area by the Commission and Department in 1966:

> "The purpose of Frank's Tract State Recreation Area is to perpetuate, as a recreational resource, the flooded island in the Sacramento-San Joaquin Delta known as Frank's Tract and to provide permanently the opportunity for water-related recreational activities so that the recreational, scenic, historical, scientific, and natural values of Frank's Tract and related portions of the Delta may be enjoyed by the people."

This report coordinates data developed to date with input from governmental agencies and the public into an Optimum Plan which gives direction to the future planning and development of Frank's Tract State Recreation Area.

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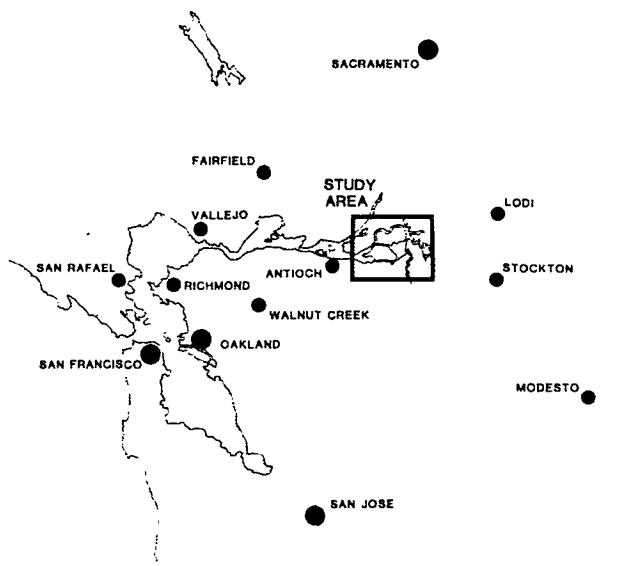
II. Orientation

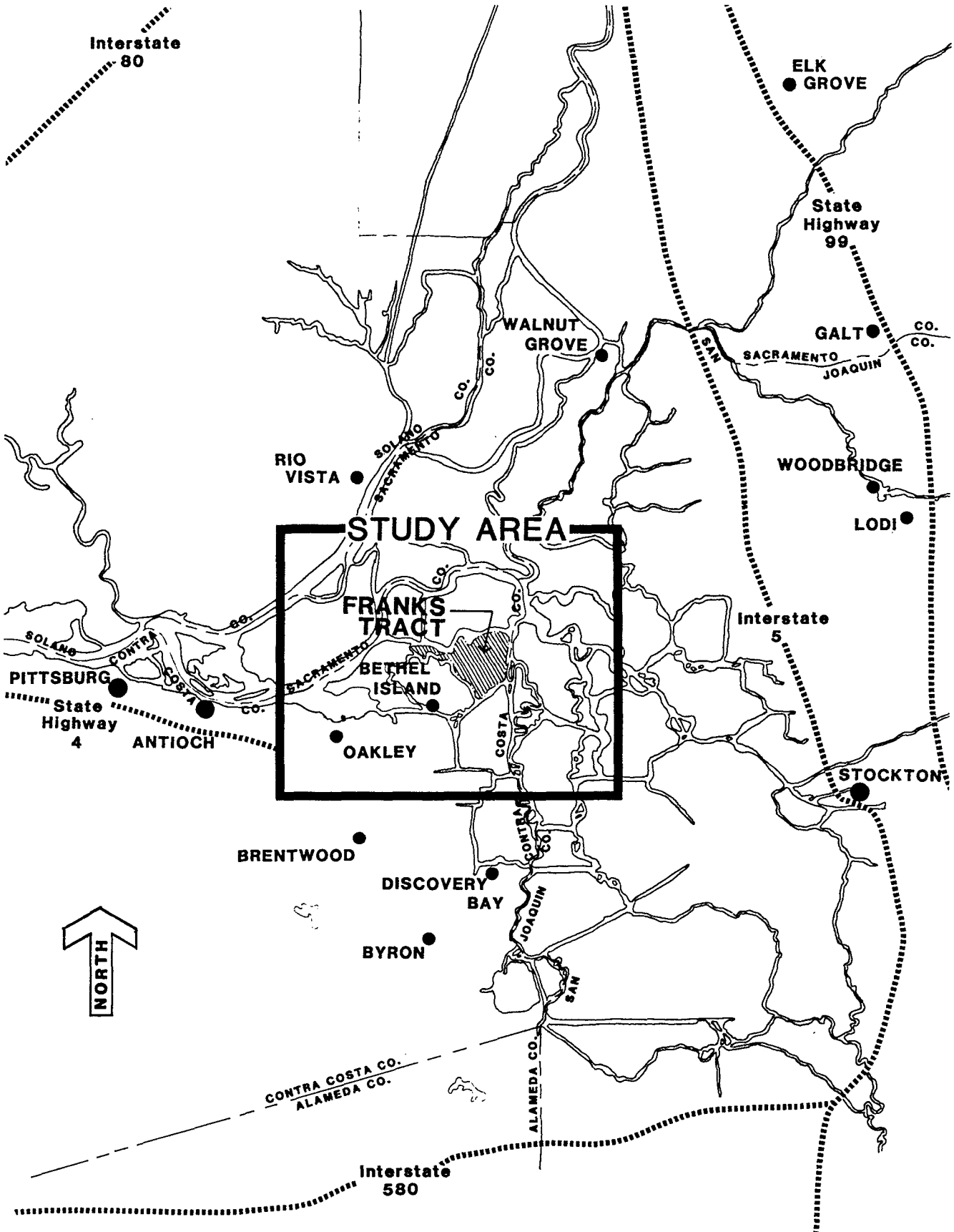
SETTING

Frank's Tract State Recreation Area is located in the northeast corner of Contra Costa County and at the eastern edge of the San Francisco Bay Area; an area comprised of nine counties and a population in excess of 5,000,000. It is centrally located in relationship to major cities in the region, being a bit over one hour's drive from San Francisco, San Jose, Sacramento, San Rafael and Stockton.

The Study Area is approximately 10 road miles east of the intersection of State Highways 4 and 160 and 14 miles east of the City of Antioch in Contra Costa County. It is 5 water miles southeast of Brannan Island State Recreation Area which is itself just south of the City of Rio Vista.

Frank's Tract's southwest side is located adjacent to the northeast side of Bethel Island and just across Piper Slough. It is bounded on the southeast by Sand Mound Slough which sepa-




Interstate 80
ELK GROVE
State Highway 99
WALNUT GROVE
GALT
CO.
CO.
SAN JOAQUIN
SACRAMENTO
CO.
CO.
RIO VISTA
SOLANO
SACRAMENTO
CO.
WOODBRIDGE
LODI
STUDY AREA
FRANKS TRACT
CO.
CO.
Interstate 5
SOLANO
CONTRA
COSTA
CO.
CO.
SACRAMENTO
BETHEL ISLAND
PITTSBURG
State Highway 4
ANTIOCH
OAKLEY
COSTA
CO.
STOCKTON
CONTRA
COSTA
CO.
BRENTWOOD
DISCOVERY BAY
JOAQUIN
SAN
BYRON
NORTH
CONTRA COSTA CO.
ALAMEDA CO.
ALAMEDA CO.
Interstate 580

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rates Frank's Tract from Holland Tract. On the east, Old River separates Frank's Tract from Mandeville Island and on the north, False River separates Frank's Tract from Webb Tract. A 330-acre arm of Frank's Tract known as Little Frank's Tract, extends to the west and is bounded by False River/Webb Tract and Bradford Island on the north, Jersey Island on the west and Piper Slough/Bethel Island on the south.

The Tracts adjacent to Frank's Tract are predominantly used for agriculture except for Bethel Island where a permanent population of approximately 2,500 doubles on an average summer weekend due to the influx of visitors seeking recreation in the Delta. Bethel Island is currently a retirement and second home community with the majority of local business catering to boating and other water related recreation. As Contra Costa County grows in population, east County and Bethel Island will feel the pressure to expand as well.

Frank's Tract, formerly a 3,300-acre island that was flooded in 1936 and again in 1938, is now virtually a lake surrounded by water. This is due to the original levee system not being restored, with the remnants of that levee system separating Frank's Lake from the surrounding sloughs. The remnants which remain above water consist of about 300 acres of dispersed narrow land forms; some are substantial "channel islands," some are vegetated berms and some have been reduced to sand flats. These remnants plus the larger non-leveed islands just outside of the State Recreation Area provide varying amounts of vegetation and wildlife habitat. The protection of habitat must be taken into account in the planning of Frank's Tract.

OBJECTIVE OF THE STUDY

The team's objective has been an assessment of existing data and public desires in enough detail to result in an **Optimum Plan**, defined as a **preliminary plan for the area which represents an acceptable balance of uses that fulfills the State Park Commission/Department of Parks and Recreation Declaration of Purpose.**

Factors that were considered in the preparation of this plan were:

a. State ownership;

b. Specialized concerns of other public and private agencies;

c. Regional interest in recreation use;

d. Special interests of local residents & businesses;

e. Need to accommodate & manage the various interests;

f. Limited funds to build, operate and maintain facilities;

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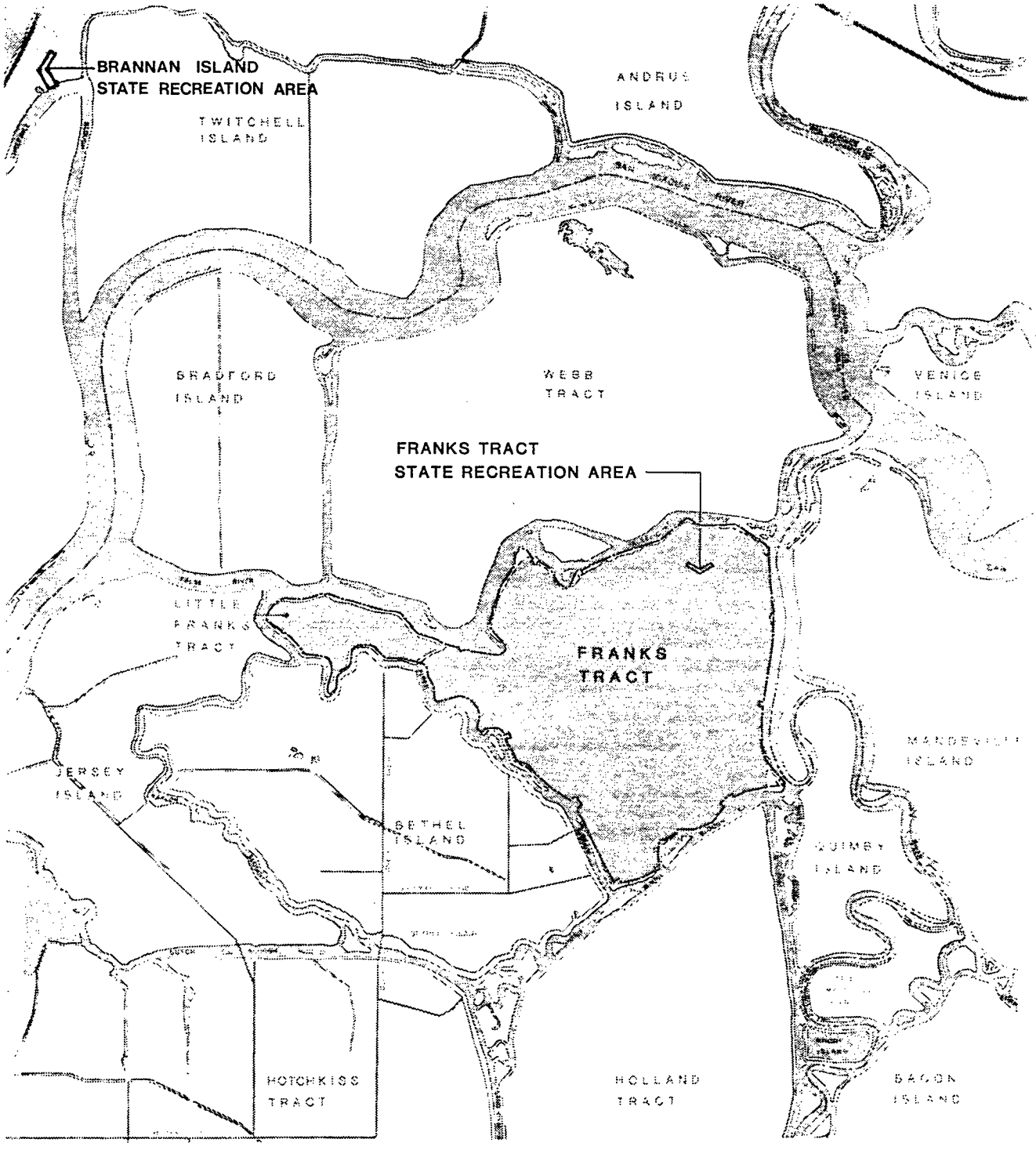
g. Concern for personal safety, levee maintenance, water quality, flooding, ground subsidence, preservation of wildlife and its habitat;

h. Effects of population growth in the vicinity;

i. Opportunities to use the unique resources of the Frank's Tract State Recreation Area for maximum public benefit.



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IMPORTANCE OF THE STUDY

Protection of Life and Property

Neither Little Frank's Tract, nor Frank's Tract are inhabited and consequently, human lives are not at jeopardy during flood conditions in the Delta. However, the existing physical condition of both tracts puts an additional burden on the flood control facilities protecting adjacent islands including Bethel Island, Holland Tract, Mandeville Island, and Webb Tract. Both Little Frank's and Frank's Tracts are flooded due to levee breaks and wind-generated waves which place additional stresses on the levees protecting the neighboring islands. Under the right combination of flood runoff, high tides and wind conditions, water surface elevations threaten to overtop the levees protecting neighboring islands and the erosive forces of wind-generated waves increase the possibility of structural failures.

Provision of Recreation

Frank's Tract State Recreation Area was acquired beginning in 1959 with the idea of using it as an aquatic recreation area and preserving some of the natural values of the Delta. Although there have been specific recommendations for Little Frank's Tract , desired use of Frank's Tract has not been as clear. The original intent was to develop a campground, picnic area and boat-in campsites on the upland portion of Little Frank's Tract and preserve the remainder of Little Frank's Tract as a natural area. The intent was never implemented. Over the years the protecting levees deteriorated, in spite of sporadic maintenance and repair, to their present state of disrepair.

There is a demand in the Delta for beaches and places to boat-in and picnic or camp. These opportunities are minimal on and around Frank's Tract and this study locates such opportunity areas.

PLANNING PROCESS

The Frank's Tract Planning Team consists of technical people experienced in environmental and engineering sciences as well as in design and planning. The Frank's Tract Assessment Study is divided into three phases.

Assessment of Conditions

Existing studies and reports were collected and reviewed. Questions were formulated for interviews with agencies and individuals and a schedule of interactive meetings with a Technical Advisory Committee was set. A preliminary boat trip was made through the Recreation Area and to its surrounding sloughs and islands. This was followed by a review of aerial photographs, a driving/walking trip to explore potential access to Frank's Tract and a field trip to review the facilities at Brannan Island State Park. A second boat trip was made to confirm earlier observations and to generate ideas. Issues, opportunities and constraints were developed from these data, interviews and trips.

Evaluation of Alternatives

Issues, opportunities and constraints were all evaluated in order to arrive at a series of options for the development of Frank's Tract. The opportunities for development were evaluated based on recreational opportunities and resource protection afforded. Alternatives were then developed stressing the following broad objectives:

a. how to treat Little Frank's Tract once the levees are repaired.

b. how to provide recreation opportunities in Frank's Tract for maximum public benefit.

c. how to create areas of multiple-use (provision of recreation opportunities, protection of life and property, protection and creation of habitat.

d. how to access Frank's Tract from the water and from the land.

The Optimum Plan

Alternatives were evaluated based on access, cost, recreational and educational opportunities afforded, resource protection afforded and technical feasibility. The resulting recommendations are presented along with a suggested sequence of development as the Optimum Plan, the recommended direction for the further detailed planning of Frank's Tract State Recreation Area.

PUBLIC PARTICIPATION

A key element in the planning process was public participation which focused on two public workshops. The first dealt generally with issues and opportunities; the second dealt more specifically with alternative schemes and strategies for the study area.

Purpose

The purpose of the public participation program was to identify public and agency interests in the Frank's Tract State Recreation Area and to facilitate the incorporation of these interests in the Optimum Plan. The intention was to include the public and concerned agencies from the beginning of the planning process, insuring that all interested parties would have an opportunity to influence the plan as it evolved.

Format

The principal vehicle for public participation was a series of two workshops. The first was held on Saturday morning, October 19, 1985 at Bethel Island, the second in Brentwood on Thursday evening, November 7, 1985. The workshops provided an opportunity for the exchange of information during the course of the study.

In preparation for the first workshop interviews were conducted with individuals and agency representatives known to have an interest in Frank's Tract. The practice of conducting interviews was continued throughout the process as additional individuals and agencies were identified or as the need for information became known.

The names of those persons contacted were placed on a mailing list which was maintained by the East Bay Regional Park District. The list was updated during the course of the study.

Workshops

Two workshops were conducted. In preparation for each, a workbook was drafted providing background information, gleaned from interviews and technical research, and outlining topics to be discussed. Each workbook was mailed to those on the mailing list at least one week prior to the workshop. Additional copies were placed at convenient locations in the study area. The advance mailing enabled participants to prepare for workshop discussions.

Discussions at each workshop were conducted by four small groups of 10-15 persons randomly formed as participants convened. Each group selected a discussion leader and recorder. Facilitators from the planning team were assigned to each group. The workbook served as a guide to discussion (See Appendix A).

Each workshop included a preliminary assembly for opening presentation. Concluding assemblies were held for the purpose of individual summary presenta-

tions by discussion groups, enabling participants to become informed of the conclusions of other groups.

The results of the first workshop were summarized and included in a section of the second workbook. This enabled participants to verify the conclusions and provided those who did not attend an opportunity to become informed. In addition, through cooperation of the local press, workshop activities were made known to a wide audience, thereby generating substantial additional interest and participation.

The workshop process was one of generally determining issues and opportunities and translating them into the form of more specific alternatives. Finally, the process led to a single set of conclusions and recommendations.

Technical Advisory Committee (TAC)

Each of the public agencies that contributed funds to the study was represented on a committee which convened three times during the study period to monitor progress and to provide a source of technical information. The TAC meetings were held at Bethel Island. In addition to the TAC meetings, a final meeting was held in Sacramento for the purpose of briefing the State departments which contributed to and participated in the study.

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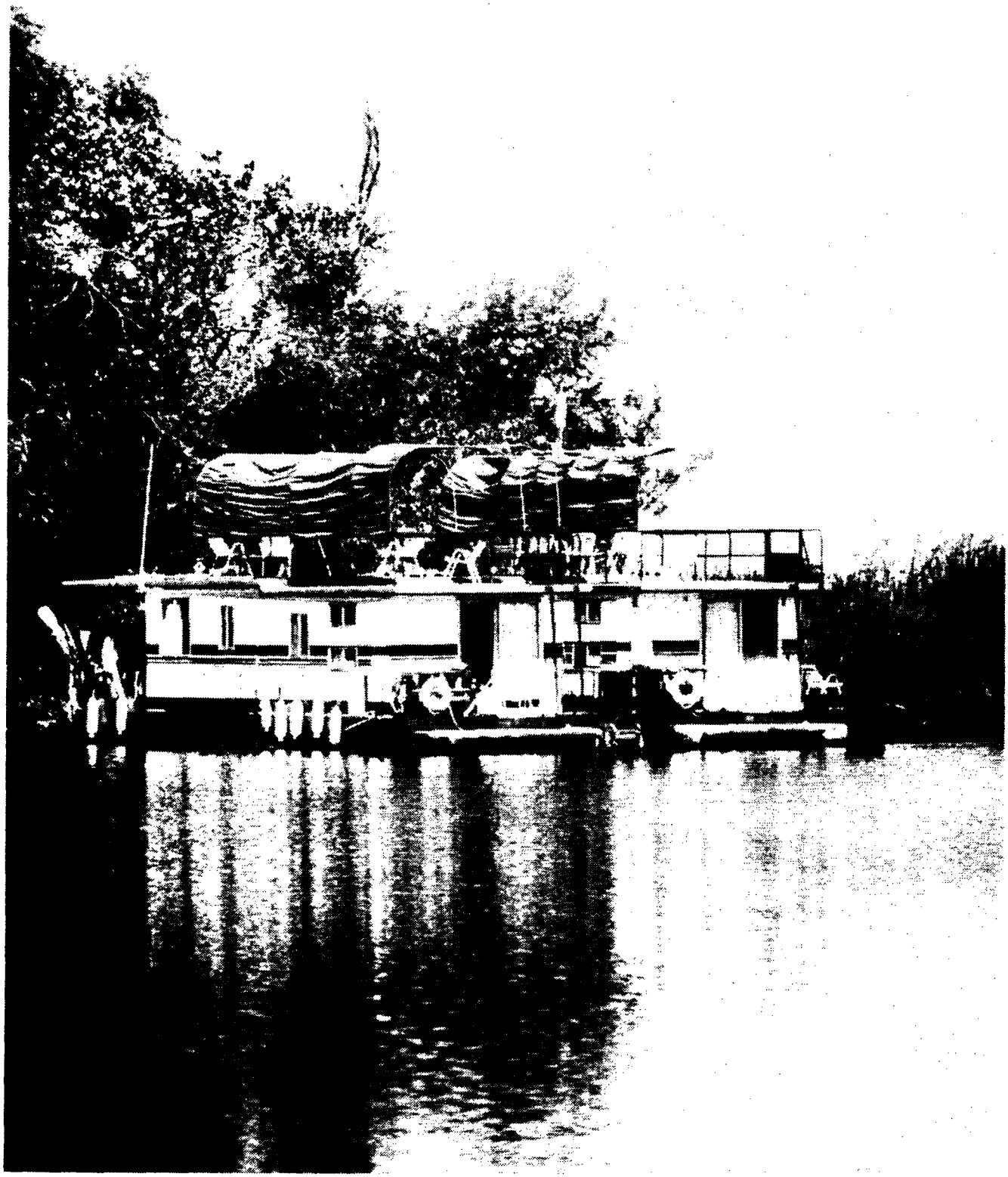

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III. The Optimum Plan

THE CONCEPT

The basic thrust of the Frank's Tract Optimum Plan is to provide opportunities for multiple uses to satisfy a range of issues. A major concern is the protection of life and property in areas bordering Frank's Tract. The Plan's objective is to achieve this protection while enhancing natural habitat and providing recreation. The Plan recommends the following:

1. Little Frank's Tract should be restored to a fresh water marsh and lake.

2. Portions of Frank's Tract levee remnants should be reconstructed to provide multiple-use as wave-blocking, habitat and recreation islands.

3. Areas of sensitive habitat, such as the unleveed channel islands just to the northwest and just to the southeast of the Recreation Area should remain as habitat.

4. Where feasible, new wave-blocking islands should be constructed to provide both new habitat and boat in recreation areas.

5. Access and staging of Frank's Tract State Recreation Area should occur at two places. At the north Bethel Island site, the emphasis would be on accessing Little Frank's Tract and interpreting the Delta. At Holland Tract, the emphasis would be on recreation, including a beach, picnic facilities and boat access to Frank's Tract.

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6. Brannan Island State Recreation Area should be considered as a land base for maintenance and operation of Frank's Tract State Recreation Area and the two Recreation Areas should be master planned as one unit.

As illustrated on the Optimum Plan Map on the following page, the Optimum Recreation Plan covers the broad topics listed below:

- Little Frank's Tract
- Boat-in Opportunity Areas
- Access Points
- Sequence of Development

FEATURES

Little Frank's Tract

This report strongly supports the restoration of Little Frank's Tract to a fresh water marsh and lake. Wildlife should take priority over other uses.

Background

Little Frank's Tract is a 330 acre portion of the State Recreation Area which extends west from Frank's Tract Lake. It was protected from the Frank's Tract floods of 1936 and 1938 by a north-south cross levee located at Little Frank's Tract's east end. However, the Little Frank's Tract levee broke in December of 1981 and the Tract flooded. Previous to the break, the Tract was a fresh water marsh, supporting a variety of waterfowl, perching birds and other wildlife. The marsh was used as the destination of educational field trips. Currently, the levees are being surveyed to assess their condition with the intent of repairing them in the spring of 1986.

Restoration

The primary goal for Little Frank's Tract is the creation of a fresh water marsh (Area B on the Optimum Plan Map). The secondary goal is providing a means of access to the public for scientific and educational study as well as for casual observation of wildlife in such a way as to create a minimum impact on the environment.

The map on page 15, Little Frank's Tract Restoration Concept Plan, gives a general idea of the conditions which existed at Little Frank's Tract prior to the levee break of 1981. It is assumed that the topography which existed at Little Frank's Tract has not substantially changed since 1981 and thus would support the variations in conditions suggested here and as detailed in the paragraphs below.

The general character of the Tract was shallow to boggy with large areas covered by tules and cattails and with occasional navigable waterways. These waterways connect to two large open bodies of water and a small pond on which ducks, cormorants and geese land and rest. An old drainage channel located at approximately the north/south center of the Tract and running generally from east to west provides the deepest water. The three higher areas of tree growth are indicated on the plan. These islands should be four to eight feet above mean water level and should be planted with black willows to provide roosts for blue herons,

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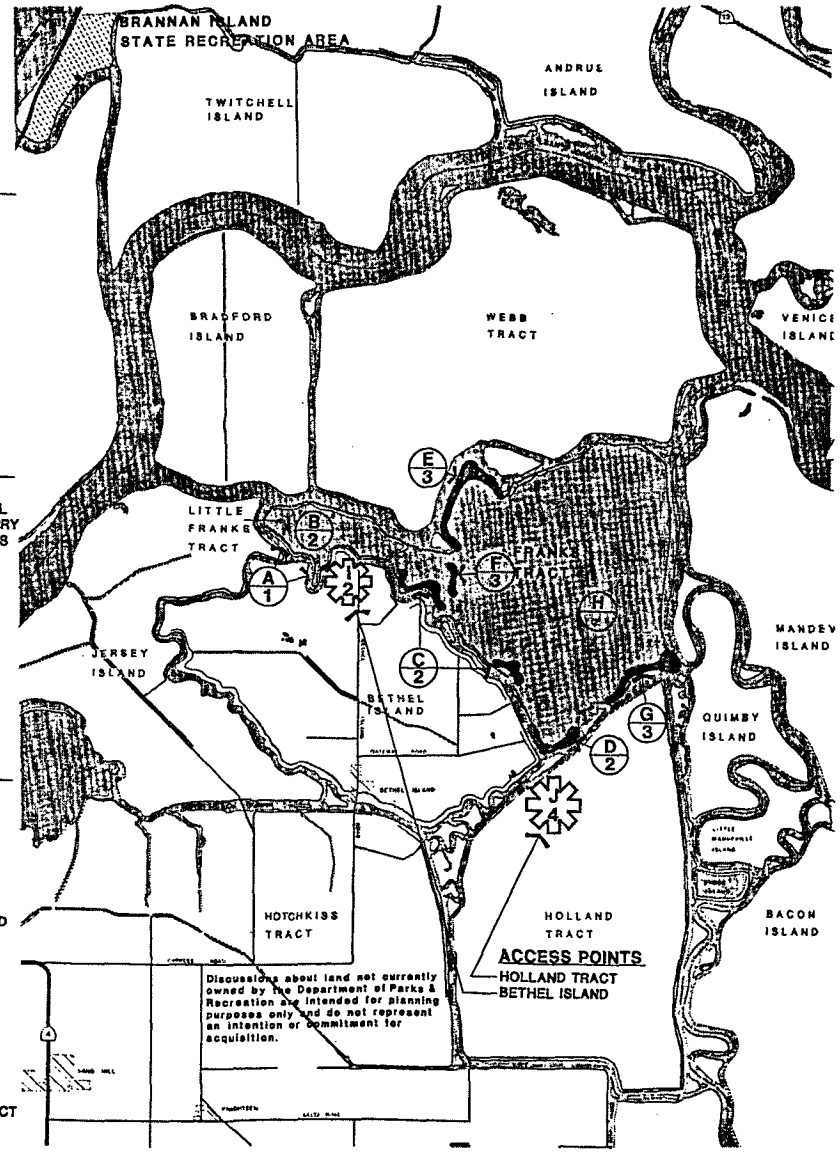


SEQUENCE

1. NOW IN PROGRESS
2. SHORT RANGE
3. MEDIUM RANGE
4. LONG RANGE

LITTLE FRANKS TRACT

- RE-ESTABLISH NATURAL HABITAT
- INTERPRETIVE / EDUCATIONAL TRAIL
- ACCESS BY PRIVATE BOAT OR FERRY
- RESTROOMS & TRASH CONTAINERS

A/1 REPAIR EXISTING LEVEES

B/2 CREATE HABITAT / INTERPRETIVE AREA

BOAT-IN OPPORTUNITY AREAS

- POSSIBLE FACILITIES
  - PICNIC AREA
  - BEACH
  - PLANTINGS
  - RESTROOMS
  - TRASH CONTAINERS

C/2 WAVE BLOCKING ISLANDS ADJACENT TO BETHEL ISLAND

D/2 SAND MOUND / PIPER SLOUGH CONFLUENCE

E/3 FRANKS TRACT N.W. LEVEES

F/3 MANDY'S ISLAND AREA

G/3 FRANKS TRACT LEVEES ADJACENT TO HOLLAND TRACT

1/2 BETHEL ISLAND ACCESS POINT

- EDUCATIONAL ORIENTATION
- RELATE TO LITTLE FRANKS TRACT
- DAY USE ONLY
- FACILITIES & ACTIVITIES
  - DELTA EDUCATION CENTER
  - INTERPRETIVE TRAILS
  - PICNIC AREA
  - RESTROOMS
  - FISHING PIER
  - BOAT LAUNCH FOR HAND CARRIED BOATS
  - GUEST DOCK
  - PEDESTRIAN FERRY TO FRANKS TRACT & LITTLE FRANKS TRACT

J/4 HOLLAND TRACT ACCESS POINT

- THE MAIN ACTIVITY CENTER FOR FRANKS TRACT
- REQUIRES A NEW ROAD AND BRIDGE TO ACCESS
- DAY USE ONLY
- FACILITIES & ACTIVITIES
  - BEACH
  - PICNIC AREA
  - RESTROOMS/DRESSING ROOMS
  - FISHING PIER
  - BOAT RAMP
  - GUEST DOCK
  - OPEN RECREATION AREA

OPTIMUM PLAN

Franks Tract State Recreation Area Optimum Plan

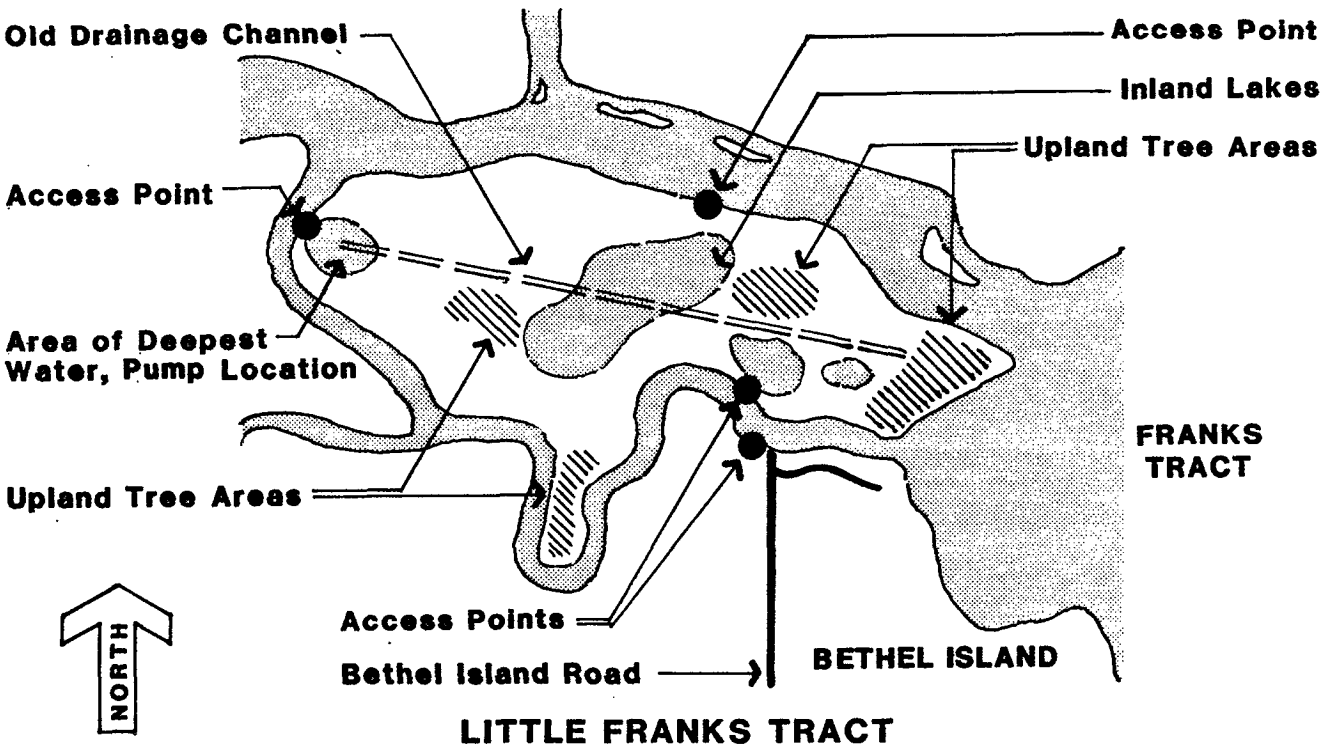
Contra Costa County, California

California Department of Parks & Recreation

Roberts Associates
Landscape Architects & Land Planners

0 1000' 1 Mile 2 Miles 30 ACRES

NORTH



LITTLE FRANKS TRACT RESTORATION CONCEPT

Figure 1

black crowned night herons and crows. These perching islands should be out of shotgun range of the surrounding levees.

The old drainage channel was shallowest at the east end allowing for an area of upland environment. This upland area of trees and scrub should be replaced. The channel was deepest (8'-10') at the west end and it is here that a pump was and can again be located.

Entry from the levee into the Tract is easiest at the west (pump) end and at one location each on north and south sides of the Tract. This is because of the deep water existing on the Tract side of the levee allowing for easy launching of canoes. However, the tidal current at the west end of the Tract can be strong making access from the slough to the levee difficult.

The east end of the Tract should not be used for access due to the unique (for Frank's Tract) upland environment. At least one access point, preferably the one on Piper Slough across from the Bethel Island Road access point, should be constructed with paths parallel to and ramping over the levee to allow for easier portage of canoes (see Figure 2, Access Points: Bethel Island and Little Frank's Tract, page 16).

After repair of the Little Frank's Tract levees, (Area A on the Optimum Plan Map), the first step would be to drain the water from the Tract. It will not be necessary to completely drain the Tract but generally speaking, water should be taken down until large boggy areas exist. This operation must be supported by a marsh restoration plan and be supervised by a person knowl-

edgeable about the desired and past conditions. At this point, deeper ponds should exist as well as the boggy areas. Some dredging may be necessary to achieve these ponds. Islands, as described above and shown on the plan, should be created from locally dredged material or if necessary, material can be brought in hydraulically. Islands and boggy areas should be vegetated only after a restoration plan is completed. Nesting boxes would assist in the repopulation of Wood Ducks, King Fishers and hawks.

Use of Little Frank's Tract

Use of Little Frank's Tract should be limited to low intensity activities with the emphasis on observation, education and scientific study. Access, as mentioned above, should be confined to only a few selected locations. A levee trail should be provided around the entire Tract. In certain areas, the trail can be brought closer to the marsh and the levee can be widened to create more of a vegetated and intimate experience (see Section: Little

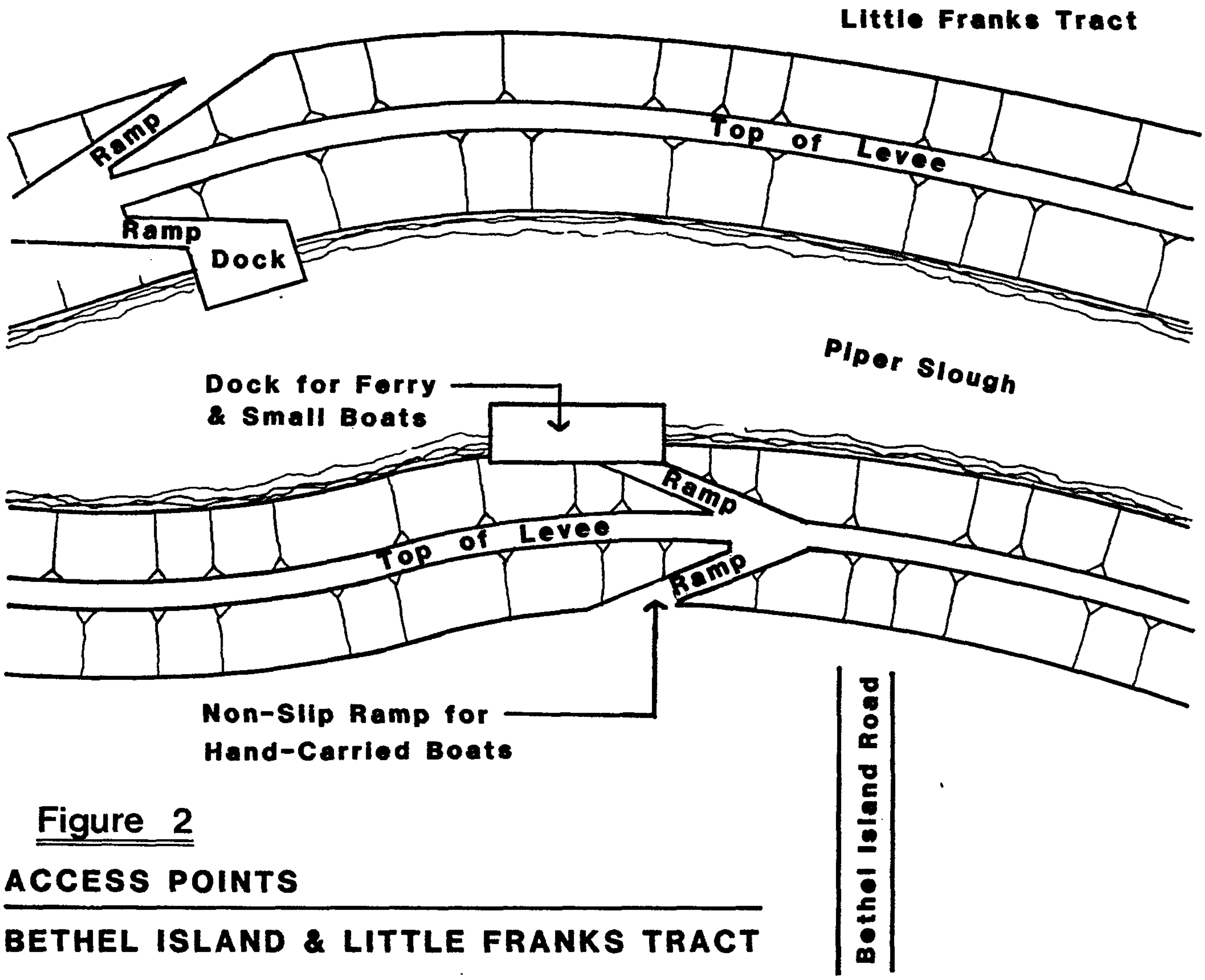


Figure 2

ACCESS POINTS

BETHEL ISLAND & LITTLE FRANKS TRACT

Frank's Tract Levee, page 19). Wooden Walkways can also be constructed at an elevation above high water so as not to disturb the marsh below and allow for handicap access. These walkways would allow people direct access into the marsh environment. Controlling the maximum number of people permitted on the Island at any one time should be considered. School tours should be scheduled so as not to compete with most popular times of public visitation.

Restrooms need to be provided both at the North Bethel Island access and on Little Frank's Tract, but no other formal activities would be allowed; no picnic or general recreation facilities would be provided.

Little Frank's Tract is not a major nesting area and therefore use need not be seasonal. However, a restoration plan and seasonal observation of wildlife use of the area after restoration should confirm times of use. Most migratory birds will use the Tract in winter, thus lessening conflict with recreationists. Users who explore the Tract by canoe should bring their own canoes. Storing canoes for public use at the Tract, would raise the possibility of environmental damage.

Access

From 1973 until the levee break of December, 1981, The Alexander Lindsay Junior Museum had been sponsoring trips to Little Frank's Tract to observe and learn about its environment. The trip across Piper Slough was made by canoes launched at the north end of Bethel Island Road. The Road provided good access to the Slough, the current is not so strong as to make the trip difficult and the landing point on Little Frank's Tract, across Piper Slough and slightly to the west of Bethel Island Road, provided a place to portage canoes that was adjacent to an open body of water in Little Frank's Tract.

This access point is still useable today. It has existing road access from Bethel Island, and it avoids some of the strong tidal currents that occur at the east and west confluences of Piper Slough and False River. In addition, it is presently a five mile per hour zone. Because of the topography of the now flooded Little Frank's Tract, and the location of the old drainage ditches, it will be prudent to restore the Tract to an appearance close to what it once had, thus resulting in an open, navigable body of water for launching canoes (see Little Frank's Tract Plan, page 15). A new landing dock at the site of the old Corps of Engineers dock should be provided and ramps up and over the levee should be built for the portaging of canoes (see Little Frank's Tract Access Diagram, page 16).

Frank's Tract Boat-in Opportunity Areas

Several areas within Big Frank's Tract present opportunities for boat-in recreation. Generally, these areas have been selected for several reasons.

1. They present the possibility of multiple use: recreation, protection, habitat.

2. They are easy to access.

3. They are protected from prevailing westerly winds.

The areas indicated by shading on the Optimum Plan Map and labelled 'C' through 'G' are meant as areas of best opportunity. It is not intended that an entire shaded area be developed. Rather, each of those areas must be surveyed, and the criteria listed below in the Conservation section of the chapter on ISSUES AND OPPORTUNITIES should be followed to determine which portions of a given area are best suited for recreation and which areas should be conserved or enhanced as habitat.

Possible facilities which could be included at a given boat-in area are:

- picnic area
- beach
- plantings
- restrooms
- trash containers

The specific uses at a specific area will be determined as part of the next, more detailed planning phase.

Areas A and B are related to Little Frank's Tract and are discussed above.

Area C, the restoration of berms and the creation of wave-blocking islands across Piper Slough from Bethel Island, is a top priority because of the potential multiple use of these facilities. New islands will provide the protection that Bethel Island needs while providing new habitat and recreation destinations. By providing recreation on islands instead of rebuilt levees, the possible disturbance of Bethel Island residents by recreationists is lessened.

Area D, the area at the south end of Big Frank's Tract at the confluence of Piper and Sand Mound Sloughs is now used as a recreation destination and as a water-skiing area and has a small but good beach and upland area. It is also an area of shallow water and accumulating sand. Multiple use is possible here by creation of a wetland habitat in the shallow Lake (north) side of Area D. This marsh, accessible only by boardwalk from the actual upland recreation and habitat area, would provide a wonderful interpretive area. Area D is high priority because of its protection of Bethel Island and Holland Tract.

Area E, the levees at the northwest corner of Frank's Tract, now consists of a deteriorated levee/remnant berm of varying width. The area is also a habitat area and recreation use can only be permitted after careful study to determine appropriate uses. The northwest section of Frank's Tract is also a prime fishing area.

Area F, Mandy's Island, could be enlarged into an island of sufficient size to provide recreation and habitat. The area is now subject to prevailing winds from the west and so use should be concentrated on the east side of the island with wind-blocking vegetation provided on the west side.

Area G, the restoration of Frank's Tract levees adjacent to Holland Tract, provides protection to Holland Tract but is subject to wind and rough water. Nonetheless, it is easily accessible from the Holland Tract Access Point and can provide good habitat values.

Area H, Frank's Tract Lake, is available for a variety of uses,

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including sailing, waterskiing, windsurfing, fishing and hunting. These activities currently exist and should be allowed to continue with as little regulatory interference as possible. Conflicts between hunting activities and other uses are considered manageable and can be addressed through a closer monitoring of existing regulations.

Access

Two access points have been suggested as places the State should consider in order to provide access from land to the Recreation Area. Two additional areas were considered and rejected. Jersey Island necessitates a long drive over unmaintained roads only to arrive at a point far from the Lake and at a place of tricky tidal currents. The Sugar Barge area of Bethel Island is too small and very close to existing residential use.

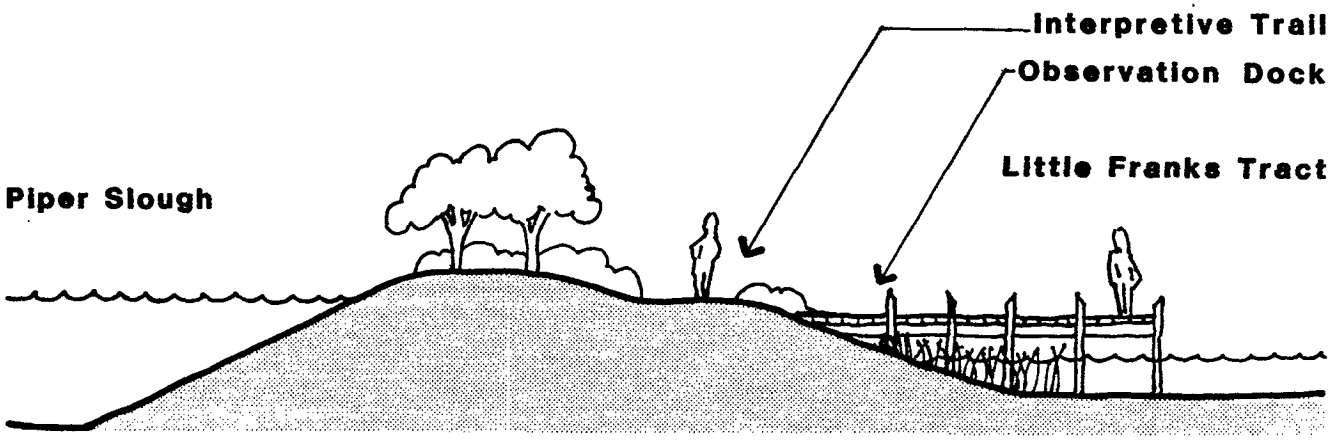
The two areas recommended as access points are Bethel Island at the north end of Bethel Island Road and Holland Tract's northwest side just south of Frank's Lake and Area D. It is appropriate to have two access points as the uses suggested at each serve different purposes and the existing conditions at each area will support different amounts of development.

Area I. Bethel Island Access Point

This area of approximately 12 acres, at the north end of Bethel Island and to the west of Bethel Island Road away from existing residences, is meant to be a low intensity use area, oriented to the interpretation of Little and Big Frank's Tracts and possibly of the Delta itself.

It is seen as a day-use-only area providing the following facilities:

- Interpretive trail
- Picnic area
- Restrooms
- Boat launch for hand carried boats
- Guest dock & fishing pier



LITTLE FRANKS TRACT
LEVEE INTERPRETIVE TRAIL
Not to Scale

Figure 3

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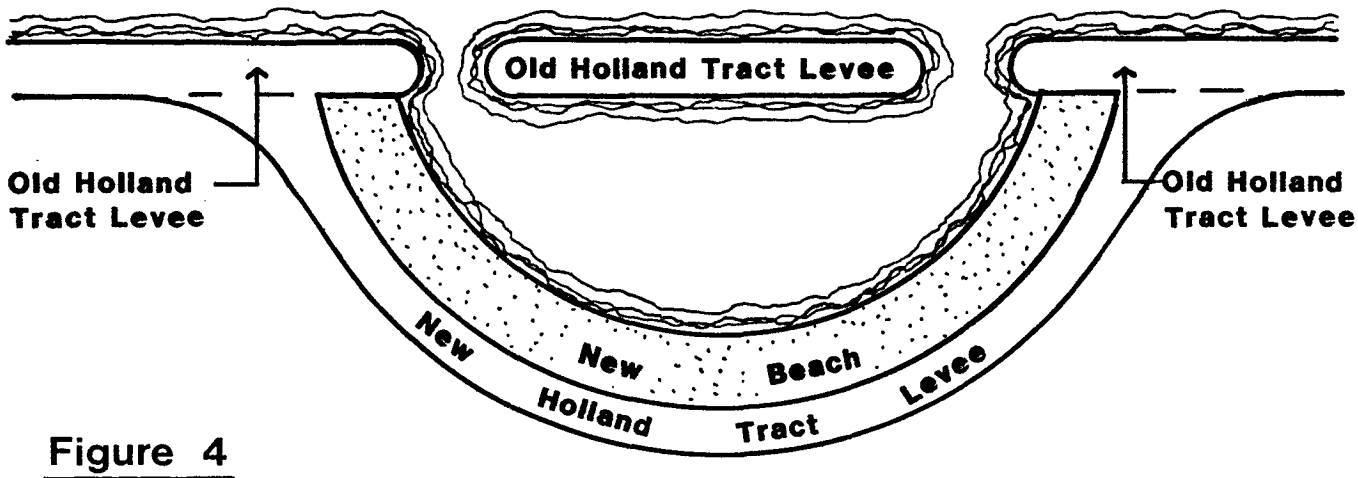

Figure 4

BEACH CONCEPT AT HOLLAND TRACT ACCESS POINT

- Pedestrian ferry
- Delta Education Center

The site has areas of existing marsh which should be protected and can be interpreted by use of a self guided trail. Picnic areas and restrooms should be low key and not imposed on the landscape. The boat launch ramp is seen as a stepped ramp perpendicular to the levee or preferably, a small non-slip ramp parallel to the slough side of the levee only large enough for the carrying of small boats and canoes. The guest dock would also be of small scale, large enough to handle the launching of small boats with some room for visiting boats. A place should also be reserved for fishing from the dock. (See Concept Plan, Access Points: Bethel Island & Little Frank's Tract, page 16).

The ferry could be as small as a motorized launch carrying 6-8 people and serving Little Frank's Tract as well as the other recreation destinations on Big Frank's Tract.

The Delta Education Center could be modest in scale (perhaps an open pavilion with panels illustrating the Delta), or it could be a building providing a range of interpretive facilities such as signs, diagrams, brochures, book sales, on-duty ranger and a small theatre for 25-50 people with a regularly shown short film or slide show. The Center is thought of as a way of raising people's awareness of Delta issues as well as a place to learn about the Recreation Area. If a building is constructed, it should be low-profile, perhaps a series of small buildings adjacent to or partially projecting over the marsh. The Center could benefit from one half to one person employed to implement management, maintenance and interpretation at the site. It should be recognized that such a use may be deemed too intensive for this area after detailed site analysis and might be better located at the Holland Tract Access Point.

Area J. Holland Tract Access Point

This area is seen as the major activity and staging center for Frank's Tract. It would provide recreation in its own right but would mainly be oriented to providing a place to access the Recreation Area from land. It has the advantage of closeness to Frank's Tract Lake while not creating an undue impact on existing development on Bethel Island. Access is potentially direct and easy but a new bridge to Holland Tract would be needed and a new road from the bridge to the access point will need to be built and maintained. Contra Costa County has a policy of eliminating maintenance on little used roads in unincorporated areas. The Holland Tract Road is one which is under consideration for the elimination of maintenance.

Area J. would be a day-use-only area and would provide the following facilities:

- Beach
- Picnic Area
- Restrooms/Dressing rooms
- Fishing pier
- Boat ramp
- Guest Dock
- Open Recreation Area

Creating a beach on the existing slough could interfere with boat traffic and so it is suggested that the Holland Tract levee be moved inland in a curve, the slough side of which would be built as a beach (see Beach Concept Plan, page 20). The old levee would be broken at two points to allow flushing but the bulk of the levee would remain to protect the swimming area from waves.

Recreation uses such as picnic tables, fishing, pier and boat ramp will have to be located and their number determined by measuring the demand for recreation in the area. The open recreation area is seen as a flexible open space for sitting, frisbee and other informal activities.

Sequence of Development

The Optimum Plan recommends a sequence of development for Frank's Tract as follows:

1. Now in Progress
2. Short Range
3. Medium Range
4. Long Range

The sequence categories are relative to one another. The actual definition of, for instance, short range, must await a master plan for the area, State desires, local desires, demand for facilities and availability of funding.

The only activity now in progress is the restoration of the Little Frank's Tract levees. Completion is expected in the summer of 1986.

In the short range, the key facilities to be developed will be the restoration of Little Frank's Tract and those levees and wave-blocking islands which also provide protection to Bethel Island.

All other boat-in destinations are considered to be medium range. As the population of East Contra Costa County increases, new studies of recreation demand will have to be done, any Master Plan may be revised and additional recreation destinations, such as new is-

lands within Frank's Tract may be designated. These new designations would occur in the long range.

Holland Tract Access Point is designated 3/4 or medium to long range because it is not now known when and if the land can be purchased by the State or when the demand for access and recreation will support such a facility.

Next Steps

There are several next steps which are immediately apparent.

1. Prepare a Master Plan for Frank's Tract State Recreation Area.

A master plan for the Area would start where this report has left off by providing more information on recreation opportunity areas, access points and their relationship to the Area's surroundings. The restoration plan for Little Frank's Tract is of high priority and could be done separately from and earlier than the Master Plan if the goals and direction set forth in this document are deemed appropriate and if a restoration plan is prepared. However, the final decision on the sequencing and the level of planning detail for Little Frank's Tract will have to be determined by the State Department of Parks and Recreation.

We strongly recommend that such a master plan be done in conjunction with the upcoming (1986) preparation of a master plan for Brannan Island State Recreation Area. The two parks are related first by water, (Brannan Island being about 5 miles to the north west of Frank's Tract) and second, both are State Recreation Areas and both serve the same geographic area. It makes sense to coordinate the uses, maintenance, operations and policing of the two State Recreation Areas.

2. Expansion of New Data Base.

In order to proceed with the design of specific facilities, additional data is needed as follows:

a) Soundings are needed in Frank's Tract in order to establish lake bottom elevations referenced to mean sea level.

b) Surveys of the levee remnants are needed to establish cross-sections.

c) Core samples are needed to locate borrow areas, establish grain size distribution and the

quantities of material potentially available.

d) Wildlife species should be identified to confirm sightings to date. This survey should be updated as new habitat is provided.

e) Measurements of recreation demand for this particular area of the Delta should be kept to help in determining a timetable for development and which recreation uses are most appropriate.

3. Prepare a Specific Plan for Bethel Island.

If the County of Contra Costa proceeds with such a plan, State staff should participate.

4. Appoint an Advisory Committee

Special consideration should be given the long term - management issues that will arise on Little Frank's Tract and Frank's Tract. An advisory committee composed of individuals from the educational, scientific and environmental communities could provide valuable assistance for protecting the wildlife values on Little Frank's Tract. Similarly, representatives from the various user groups who enjoy Frank's Tract could assist in the education of and dispersing information to their members thereby helping to avoid the need to create excess regulations or restrictions.

5. Survey Cultural Resources.

While no cultural resources of note were found during the course of this study, a qualified archeologist should survey the Recreation Area during the master planning phase.

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IV. Existing Conditions

THE PROJECT STUDY AREA

The focus of the present recreation assessment is Frank's Tract. After the levee break of 1938, the levee system was not restored. Restoration was deemed too expensive. What remains above water are about 300 acres of dispersed narrow land forms that are the remains of the former levee system including thin strands of "rocked" soil, seemingly held together by stands of tule. The rest of Frank's Tract can be classified as "submerged island" habitat--i.e. a tidal lake.

"Frank's Lake"

The submerged island habitat ("Frank's lake") is used by several fish species, primarily striped bass, black bass, and white catfish. The open water surface is used by migrating ducks, including pintail, mallard and teal. Depending on their degree of attrition, the "channel islands" that generally ring the lake reveal a variety of vegetation types. These include freshwater marsh with dense concentrations of tules and reed grass, and small areas of riparian woodland and riparian shrub-brush. Where remnant levees were at one time riprapped, they may now demonstrate a more restricted brushy riprap and herbaceous bank habitat.

Stands of riparian woodland and riparian shrub-brush on the more substantial islands provide habitat of greatest structural and biological complexity and thus attract a great diversity of wildlife species and species with more specialized habitat requirements. Thus Coopers hawk, yellow-rumped warbler, and black-crowned night heron use these habitats in preference to

other less complex Delta habitats.

The marsh habitat, which occurs largely on islands, is important as a food source and shelter for waterfowl. In addition, perching birds, and several mammals including muskrat and beaver use marsh habitat.

Surrounding Frank's Tract, "channel habitat" (i.e. open water) is found. Catfish are found in these areas, along with occasional mallard ducks. Because these channels are used heavily by boats and because piers and marinas allow for greater human activities, this habitat has moderate resource value for wildlife.

Little Frank's Tract

Before its flooding in 1981, Little Frank's Tract had been maintained as a wildlife refuge by the State Parks Department. A levee surrounded the island, and in the absence of agricultural practices of most other Delta islands, a variety of habitats including riparian woodland, riparian shrub-brush, brushy riprap, and herbaceous banks were able to flourish on the levee, while inside the levee, habitat was primarily emergent marshland along with areas of open water (non-tidal) and riparian shrub-brush. Waterfowl were abundant, along with black bass, muskrat and many other species of fish and wildlife. This island is now flooded, but plans are being implemented to repair and/or reconstruct the entire levee and restore the habitat to approximate its previous condition. A preliminary study by the National Marine Fisheries Service determined that the island, in

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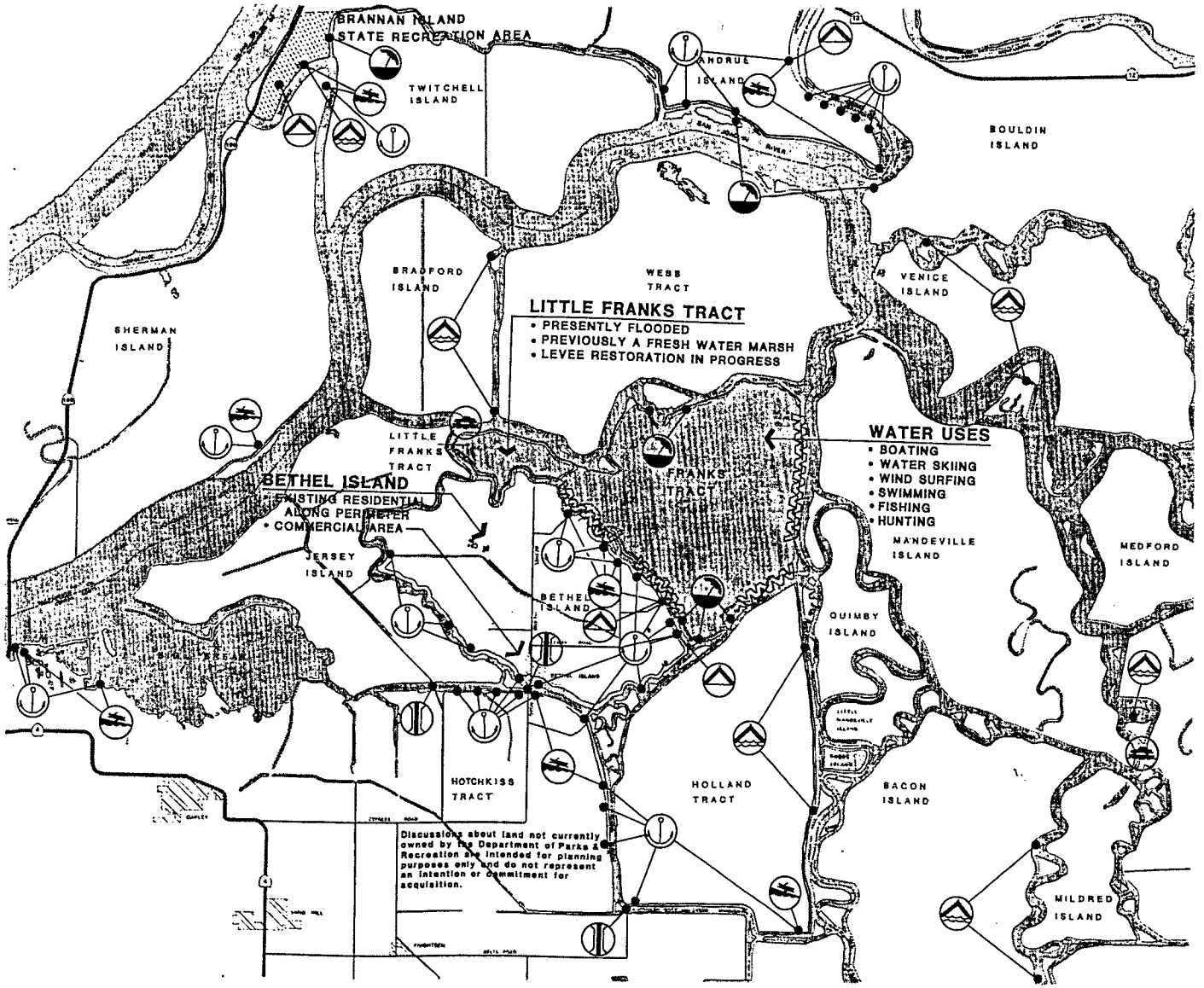

Legend

- Marina
- Boat Ramp
- Camp Area
- Boat-In Camp
- Beach Area
- Ferry
- Bridge
- Deteriorating Levee Conditior
- State Recreation Boundary

EXISTING CONDITIONS

Franks Tract State Recreation Area
Optimum Plan
Contra Costa County, California

California Department of Parks & Recreation

Roberts Associates
Landscape Architects & Land Planners

0 1000' 1 Mile 2 Miles
30 ACRES
0

NORTH

its flooded state, does not provide striped bass nursery habitat. Presently (fall 1985) the existing levee has been stripped of vegetation to evaluate its structural condition.

Little Frank's Tract has a history of use for educational purposes. For example, Jane Herlich a teacher at the Mt. Diablo Unified School District brought her classes to the island to study its natural history. In addition, groups organized by the Alexander Lindsay Junior Museum of Walnut Creek visited the island for bird watching over a period of 10 years. They paddled canoes to the levee and portaged over into the marsh within.

Bethel Island

Bethel Island lies adjacent to Frank's Tract on its southwest side across Piper Slough. This island contains a strip of continuous residential development and marinas along about two-thirds of the Island's perimeter, and a small concentration of urban development in the central southern portion. This developed area has a great deal of human activity and has very little natural resource value. Much of the rest of the island however, contains a mixture of cropland, pasture and fallow land that has re-established riparian species; all of these habitats are used by a variety of wildlife species. Waterfowl especially utilize flooded cropland during the winter season. In addition, portions of Bethel Island contain small seasonal and permanent marshland areas and riparian habitat that are important for an even greater variety of wildlife species. Drainage channels also provide another valuable form of wildlife habitat.

Holland Tract

Holland Tract is used primarily for agriculture. Small areas of upland habitat, small lakes and ditches provide wildlife habitat, in addition to winter forage areas on the fallow fields and pastures. No significant areas of emergent wetland or riparian woodland are associated with the staging area proposed on the northwest portion of Holland Tract.

Other Adjacent Islands

Jersey Island to the west and Quimby, Little Mandeville, Old River Islands, Rhode, Mildred, and Medford Island, located east to southeast of Frank's Tract, provide a diverse mix of upland, agricultural, riparian, and marsh habitats. Access is limited, and the prevailing land use is agricultural. Levees for the most part are maintained to permit very limited vegetation.

RECREATION

Overview of Existing Delta Recreation

A document prepared for the State of California Department of Water Resources, Delta Outdoor Recreation Survey, March 1980 by Edilberto Z. Cajucom,

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Ph.D. and Associates[1], contains surveys and projections of recreation use of the Sacramento-San Joaquin Delta. The study area for the survey included the legal boundary of the Delta, as defined in Section 12220 of the Water Code, excluding urban areas (see Appendix B).

The survey concluded that the Delta visitor averages 40-44 years of age, is married with a household size of 2-3 persons and is employed full-time. Over one half of the respondents had weekends off and over 45% earned more than $20,000 per year.

Delta residents surveyed averaged 45-49 years of age, were married with households of 2-3 people , one half were employed full-time and 30% were retired. Thirty percent had weekends off and 20% were off all week. 40% reported incomes above $20,000.

Most visitors come from the vicinity of the Delta with 48% driving less than 50 miles to get to their destination. Over 30% of all visitors came from the Delta-adjacent cities of Sacramento (12%), Stockton (11%), Antioch (7%) and Pittsburg (3%).

The Delta appears to be a family oriented recreation area with 70% of the visitors and 64% of the residents in a family group.

Major activities of both residents and visitors are motor boating, fishing, relaxing, pleasure driving, sightseeing, overnight camping, picnicking, swimming and waterskiing.

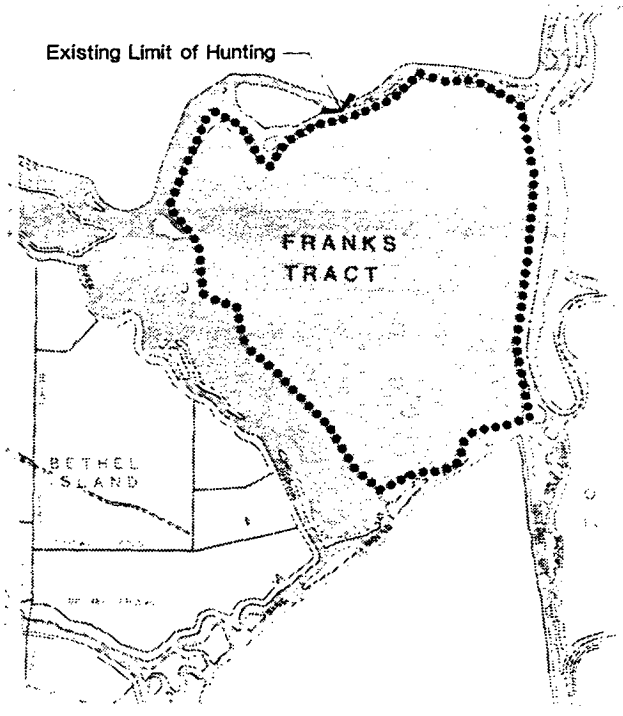
The most popular specific area mentioned for recreation is Frank's Tract/Bethel Island for both visitors (24%) and residents (33%).

Estimated recreation days for the 1977-78 period were 11,895,384. Forecasts of future recreational use of the Delta were made based upon assumptions of population of counties adjacent to the Delta. Based on a 1985 population of 5,983,000, total recreation days would be 12,883,095. In 1990, an estimated population of 6,319,600 would generate 13,607,890 recreation days.

Existing Recreation at Frank's Tract

Recreation-residences border two-thirds of Bethel Island, which is the principal recreation destination point and support base in the central western Delta.

Both Bethel Island and Hotchkiss Tract, Bethel's nearest neighbor, support marina complexes: These are located on Piper and Taylor Sloughs, and on Dutch and



Sand Mound Sloughs (see Existing Conditions Map).

The significant recreation resources of Frank's Tract State Recreation Area are closely related to its principal feature, Frank's Tract Lake. This main body of water provides opportunity for a range of boating activities, water skiing, fishing and waterfowl hunting.

Some of the most heavily used boating-recreation areas are found in the complex made up of Old River, Connection Slough, Quimby Island, Rhode Island, and the channel islands south of Frank's Tract. This is one of the activity "nodes" that circle and feed into and out of the open waters of "Frank's Tract Lake". Other heavily used recreation waters are in False River, where significant wave wash against levees is caused by large, deep draft boats which travel here to avoid the wind in Frank's Tract open waters.

Good fishing exists adjacent to remnant levees especially in the northwest and southern areas of the Tract. Hunting is permitted on the entire lake with the exception of a band 2,000 feet wide on the water side of the southwest Frank's Tract levee. Hunting is currently not permitted on or within 200 feet of Little Frank's Tract (see diagram).

Very few beaches exist in the area with the exception of the shallow south end of Frank's Lake. There are campsites and a beach at Brannan Island State Park, 5 miles by boat to the northwest. Lack of destinations for boaters (beaches, islands, docks, campgrounds and picnic areas) at Frank's Tract limits the enjoyment of the recreation experience. This shortage often creates competition and conflicts over the use of the few destination areas that do exist.

Limited direct access to the shore of the Lake also is a limiting factor. The Area presently relies upon land bases which are in private ownership. Decisions must be made as to whether this arrangement is satisfactory or additional bases are needed.

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V. Assessment of Conditions

DELTA CONTEXT

The Sacramento-San Joaquin Delta, located in central California at the convergence of the two major river drainages of California, forms an inland 1,150+ square mile delta-like network of sloughs and islands within 50 miles of San Francisco. The Delta, as it is commonly called, was originally inundated by both tides and floods. The area consisted of tidelands, swamps, marshes and riparian woodlands that provided rich habitat for the resident and migratory fish and wildlife of Central California.

From the mid 1800's to the early 1900's, over 80 percent of the area was leveed and reclaimed for agriculture. Irrigated agriculture is still the predominant land use. Urban development covers a little over 1 percent of the area. In the past several decades recreation has become another important use, largely restricted to waterways and to a few islands.

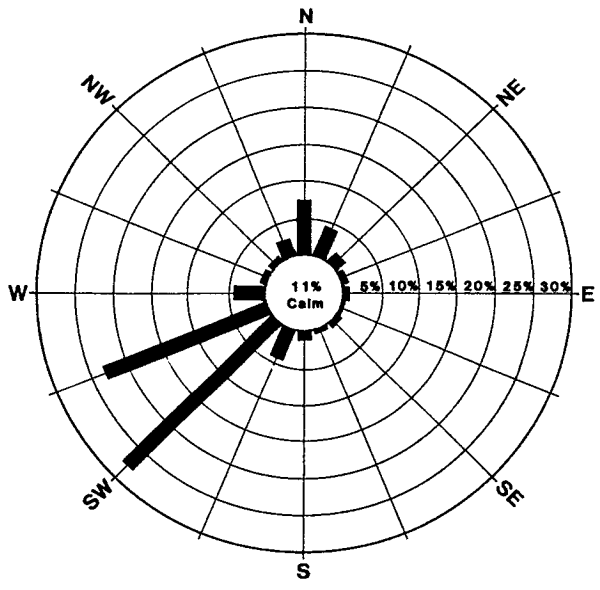
The Delta is predominantly flat, with levees and occasional dredged material disposal areas constituting the highest ground. Typical land surfaces of island interiors dip in elevation down to 20 to 25 feet below mean sea level (MSL). These low elevations are primarily a result of many decades of subsidence of the peat soils, which continue to oxidize and erode (largely from wind) at a present rate of up to 3 inches per year.

The 700 miles of channels and sloughs in the Delta afford opportunity for commercial shipping (in dredged deep water channels associated with the Ports of Stockton and Sacra-

mento) and recreational boating and water sports. The waters of the Delta also support sports fisheries, particularly for striped bass and catfish.

The regional climate is Mediterranean, with most of the average annual 16 inches of rainfall arriving between November and March. Temperature extremes in the Delta range from above 100 degrees in the summer to below freezing in winter.

Prevailing winds from the west provide a cooling influence during the summer. Winds of up to 25 miles an hour are common throughout the spring and early to mid summer. Strong surface winds from the south accompany most winter storms. Winds from the north occur in winter and spring; winds from the northeast are infrequent. (See Wind Rose).



Data Source: Wind in California, 1978, Dept. of Water Resources, Bulletin # 185, The Resources Agency
Period of Record: 1943 - 1972
Number of Observations: 254,948
Wind Direction by Percent
Latitude: 38° 16'
Longitude: 121° 56'
Elevation: 13 feet

Figure 5

CONSTRUCTION OF LEVEES AND TRACTS

In 1861, California established a commission to facilitate reclamation of Delta lands; however it was not until 1868 that reclamation was accomplished on a large scale. At that time the responsibility for reclamation was turned over to the landowners and reclamation districts. Between 1871 and 1879, most of the tracts of swamp and flooded lands were enclosed by a levee system. However, many of the leveed tracts experienced tidal flooding and were abandoned.

The development of dredges facilitated continued reclamation of the Delta. By 1930, all but a few areas of the swampland had been leveed and were producing a wide variety of crops. Although dredges had replaced hand labor in levee construction, the two techniques are similar in that neither is subject to a rigorous applied engineering approach. Both methods evolved over time on a trial-and-error basis. Because of the unstable nature of peat soils which underlie the Delta, engineers have been unable to develop rigorous technical approaches for Delta levee design and construction. It has taken years for some Delta levees to stabilize following construction and some have never stabilized.

Under the Delta's present configuration, the major factors influencing high water stages are a combination of flood flows, high tides, westerly winds and low barometric pressure. Historically, the highest stages have occurred between December and February, the period when most levee failures have occurred. While the construction of upstream reservoirs since the middle 1940's has re-

duced the threat of levee overtopping, Delta levee failures continue to occur, possibly with increasing frequency. Since 1980, levee failures have mostly been caused by foundation or levee instability problems rather than by overtopping.

Levees, many of which have been constructed on peat, are subjected to substantial hydrostatic pressure during high tides and flood stages in the rivers and other channels. They must periodically be raised and widened as the underlying soils consolidate and settle. Since 1932, there have been over 40 levee failures on the Delta islands, due to a variety of causes.

The principal causes of levee failure include:

- structural failures of levee materials
- foundation failures of underlying soils, and
- overtopping by flood flows, tides and waves.

Contributing factors include poor construction materials, erosion by current and wave action, seepage through or under the levee, rodent burrows, and improper levee repairs.

Lack of adequate maintenance to correct these problems on a regular basis also exacerbates the problem. It has been found that many levee failures result from a composite of the potential causes for failure.

MAINTENANCE OF LEVEES

Maintenance on what are called non-project levees, such as the levees on Bethel Island, Holland Tract, Mandeville Island and Webb Tract, is performed by individual maintenance districts. The quality of maintenance varies according to practices followed by the maintenance entity and does not necessarily comply with any set of standard practices. Where maintenance is deferred, conditions often result requiring periodic major levee rehabilitation. Levees in such a condition are often on the verge of failure and entities that follow such practices are gambling that the levee will "hold for one more year". Sometimes it does and sometimes it does not. Typically, flooded islands are reclaimed with emergency federal funds but there appears to be a tightening of federal funds for this purpose as it has been increasingly difficult for districts to qualify for these funds in recent years.

With the passage of the Delta Levee Maintenance Act (Way bill) in 1973, the State has been providing financial assistance to local districts for routine annual maintenance. To date, these funds have not been adequate to meet the requests for assistance and the funds have been distributed on a prorated basis for that portion of the local claim determined to be eligible for the program. For example, Bethel Island expects to receive about 75 percent of their request for the 1984-85 year.

FLOODING OF FRANK'S TRACT

Frank's Tract flooded in 1936 and 1938 and the levee system was not repaired after the 1938 flood. Consequently, the island that once supported agriculture has become a 3,300 acre lake in the center of the Delta subject to the ebb and flow of the tide. Over the past 47 years, the lev-

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ees that once protected the island have deteriorated from the continued erosive forces of boat wakes, flood flows and wind-generated waves. These levee remnants continue to break up wave action in many locations; however, there are several locations where wind-generated waves are propagated through openings in the old levee system resulting in additional destructive forces on levee systems protecting adjacent islands.

Although Frank's Tract is a State Recreation Area, the State does not acknowledge any responsibility for damages that may result to adjacent levee systems from the effects of the open water. Local efforts, primarily Bethel Island interests, have pushed for some type of State assistance to reduce the potential for a levee failure on the Piper Slough side of Bethel Island that may result from wind-generated waves traveling from the north across Frank's Tract.

FLOODING OF LITTLE FRANK'S TRACT

The levee system around Little Frank's Tract was breached in 1981 and the island has remained flooded since that time. To a lesser degree, the open water of Little Frank's Tract presents the same threat to adjacent levee systems as does the open water of Frank's Tract. The open water area is much smaller and the fetch (the length of water surface over which wind blows) across the lake is much less than that across Frank's Tract, resulting in smaller waves that can propagate through the levee openings. Nevertheless, there has been local pressure in the past few years to repair the Little Frank's Tract levee system. Funds have been appropriated for that purpose and work has been initiated to reclaim Little Frank's Tract as of the writing of this report.

CURRENT CONDITION OF STUDY AREA LEVEES

Description of Bethel Island Levees

There are approximately eleven and one half miles of levee surrounding Bethel Island which are maintained by the Bethel Island Municipal Improvement District (BIMID). Piper Slough lies between Bethel Island and Frank's Tract and Little Frank's Tract; the Bethel Island levee along Piper Slough is about four miles in length. The Piper Slough levee appears to be sound and well maintained. Rock revetment has been placed on the water side slope up to within 1-2 feet of the levee crown. The water side slope is generally clear of vegetation.

Levee maintenance on Piper Slough is complicated by the number of encroachments on the levee section on both the water and land sides of the levee. Marinas encroach on the water side and several homes have been constructed on the land side so that the floors of the homes are level with the levee crown. In many cases, the land side slope of the levee has been landscaped

in connection with home construction. This proliferation of encroachments not only makes levee inspection and maintenance difficult, but could interfere with flood fighting procedures in the event of the need to make emergency repairs during flood periods.

According to the BIMID[2], the 10 percent of Piper Slough levee which is exposed to Frank's Tract accounts for 50 percent of the costs associated with high water and storm related maintenance. It is reported that in a six-hour period in January, 1980 when the Holland Tract levee failed, $36,000 in damages were sustained on the Bethel Island levee. Bethel Island interests are concerned that a higher tide than the one which occurred in 1980, coupled with the wind conditions that occurred in January, 1980, could result in overtopping of the Bethel Island levee and subsequent failure exposing $150,000,000 of real and personal property to flood damage as well as creating the potential for the loss of human life.

The level of flood protection afforded Bethel Island by the Piper Slough levee is in question due to the probability of land subsidence which may have dropped the elevation of the crown of the levee. According to the DWR[3], the 300-year flood level (a flood with a recurrence interval of once in 300 years)is about 7.8 feet MSL in the Central Delta. This elevation is based on the Corps of Engineers analysis of extreme conditions taking into account high Delta inflows and water stages affected by high tides and wind.

The Bethel Island levee crown elevations may be as low as 8.0 feet MSL in places due to subsidence (reported by BIMID but not substantiated by surveys). Even though the 300-year flood level reported by the Corps is about 8.0 feet, the concern is that wind-generated waves across Frank's Tract could result in higher water elevations on the Bethel Island levee. It is estimated that waves generated by a 50-mph wind out of the northeast could be 2.5 feet high at the south side of Frank's Tract.

Description of Frank's Tract Levees

The levee protecting Frank's Tract failed in 1938 and without any maintenance, it has been subjected to erosive forces since that time. Consequently, all that remains of the original levee system are remnants which are continuing to deteriorate. Portions of the old levee are vegetated with riparian species such as tules, blackberry vines, bamboo and phreatophytes, such as cottonwood trees. In some places the levee is gone. The BIMID estimates that about one mile of the old levee across from Piper Slough is completely eroded; another two miles are in various stages of deterioration and that a substantial portion of that two miles will be gone within the next ten years.

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Those remnants which are still above normal water level provide a degree of protection from wind-generated waves across Frank's Tract to the surrounding islands including Bethel Island, Mandeville Island, Holland Tract and Webb Tract. Vegetation on the remnants assists in dissipating waves generated on Frank's Tract thereby reducing wave heights and energy which otherwise is taken head-on by levee sections opposite openings in the old levee system.

Description of Little Frank's Tract Levees

Little Frank's Tract, whose levees were breached in 1981, remains flooded to this day. Visual observations reveal that the levee system was overgrown with vegetation until clearing operations began in September, 1985 in preparation for the reconstruction of the levee system and subsequent reclamation of Little Frank's Tract. Observations also reveal that the land side slope of the levee system has been eroded due to wind-generated waves on the lake inside the levees. Also, the rock revetment on the water side has been displaced in some locations and is in need of repair. The levee reconstruction project will involve adding material to the old system to bring the section and the crown elevation up to Department of Parks and Recreation standards as well as repair and replacement of rock revetment.

A total of up to $1,500,000 is available for the reclamation of Little Frank's Tract, which includes $500,000 from FEMA if their standards are met. Until levee surveys and borrow site investigations are completed, it will not be known whether the $1,500,000 will be adequate to complete the job. The big unknown is whether there is sufficient suitable material available locally to reconstruct the levee system. If large quantities of imported material are required, the cost of construction and reclamation could be substantially increased and may exceed the currently available funds.

The present schedule calls for levee surveys to be completed around December 1, 1985. Following the surveys, a Request for Proposals will be issued to potential contractors for levee design, borrow site investigations and cost estimates. Then bid documents will be issued and the reconstruction project should be underway by the spring of 1986. If the levee reconstruction is completed using a "typical" section, the levee will probably look like that illustrated in Figure 6.

If there are insufficient funds to complete the project in one step, it may be possible to phase the project. Step 1 would involve plugging the breaches and building the section up to contain the design flood. Pumping Little Frank's Tract would take place at a later time when additional funds become available. It would be necessary to protect the landward slope of the reconstructed levee from wave erosion until the island is pumped out. This could be accomplished by adding local material or rip-rap of low quality rock to the land side slope in those areas that have experienced damage as revealed by the levee surveys. Note that while a rock slope may be less costly initially, placement of rock may eliminate the later possibility of a vegetated slope. Following

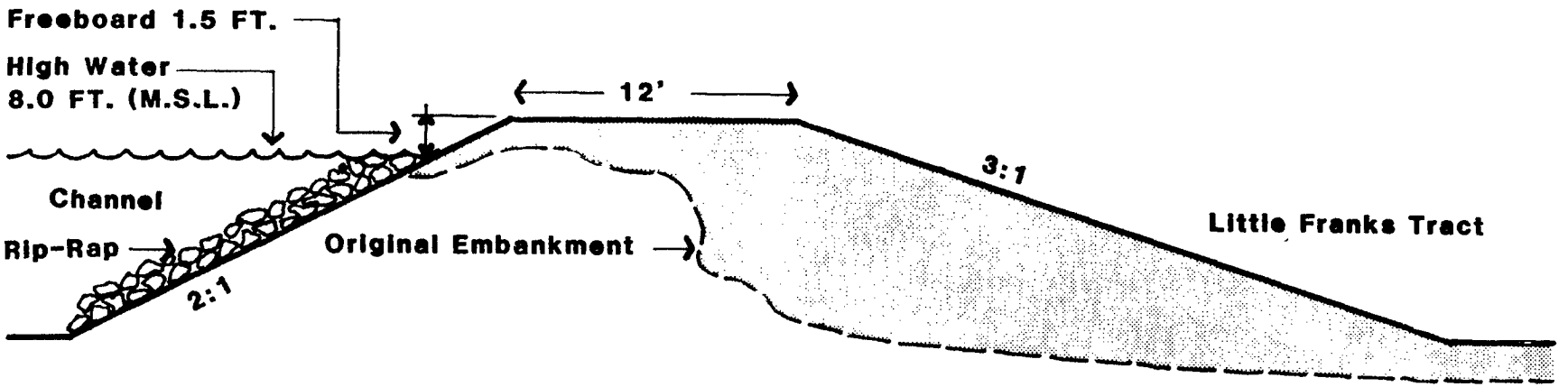


Figure 6

TYPICAL LEVEE SECTION
Not to Scale

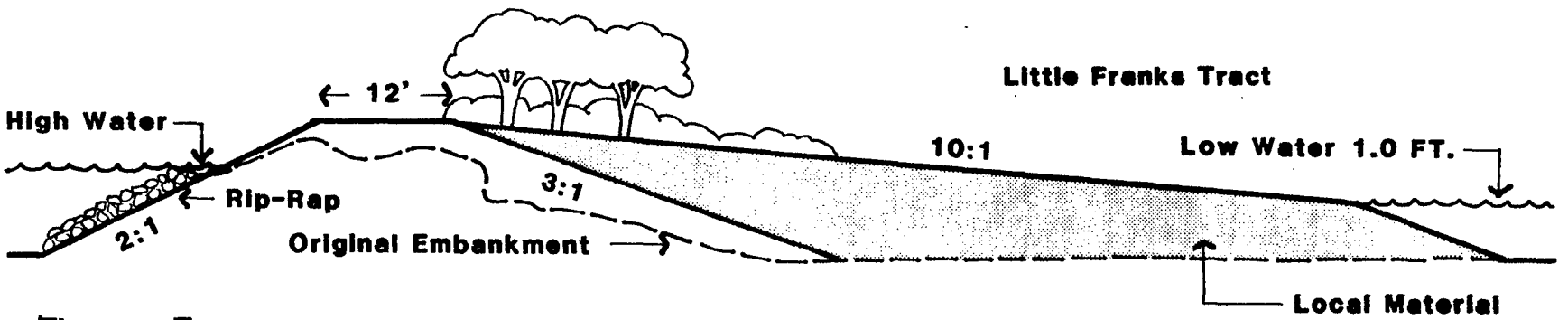


Figure 7

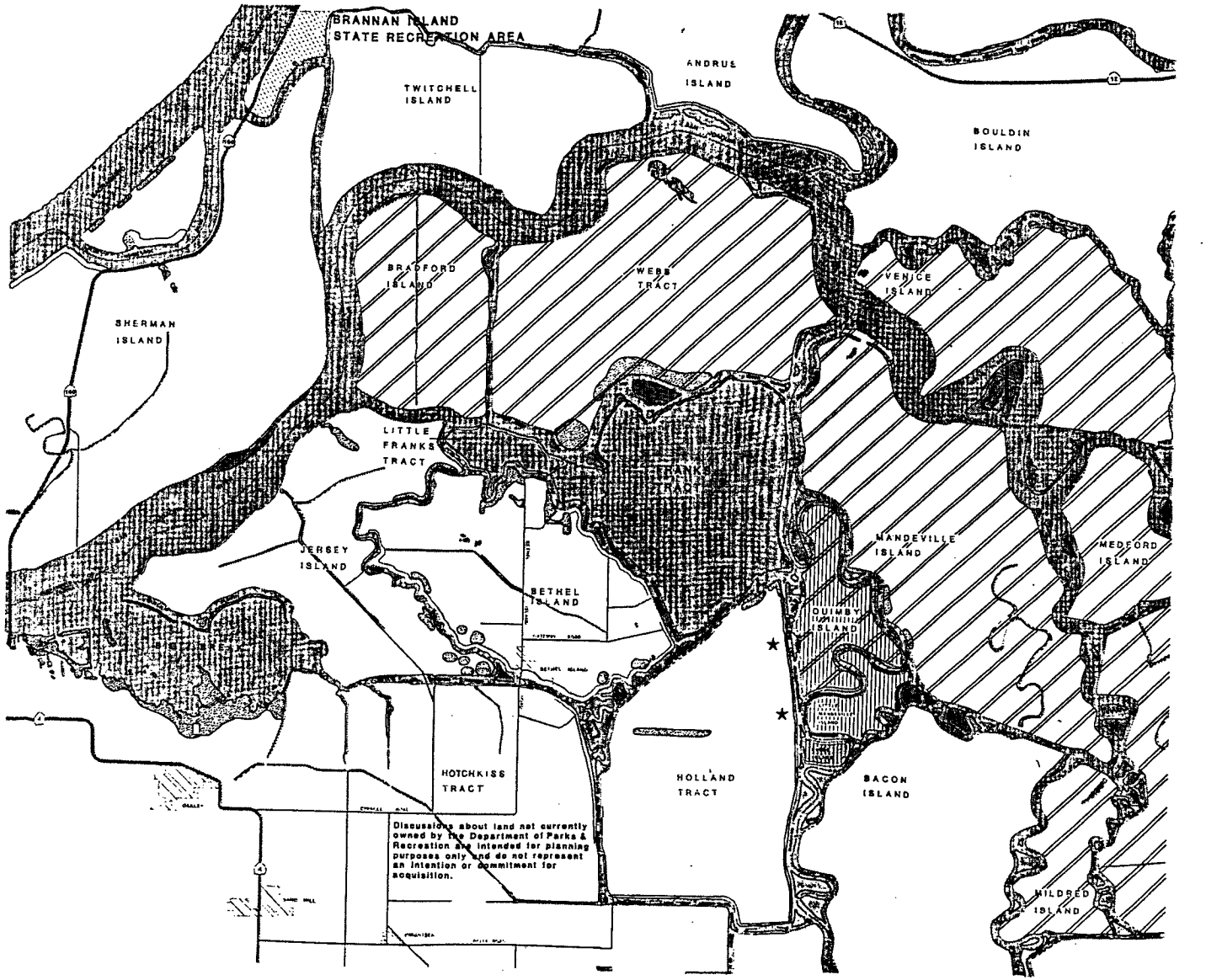
STAGED CONSTRUCTION
Not to Scale

the reclamation of the island, these flat slopes could be allowed to vegetate on a managed basis to enhance habitat values. A "typical" section would look like that illustrated in Figure 7.

Description of Other Adjacent Levee Systems

The levee systems protecting Holland Tract, Mandeville Island, Webb Tract and Jersey Island are locally maintained and do not meet any particular standards. These systems are especially prone to problems and often times the systems fail during extreme flood conditions. Holland Tract flooded in 1980, Webb Tract flooded in 1950 and 1980, and Mandeville Island flooded in 1938.

As with Bethel Island, the open expanse of water on Frank's Tract creates additional pressures on the levee systems protecting Holland Tract and Mandeville Island due to wind-generated waves. Selective rehabilitation of the Frank's Tract levee remnants or construction of wave blocking islands could alleviate erosion of these levees caused by wind-generated waves.



Legend

- Areas of Sensitive Habitat – Riparian Woodland, Shrub Brush & Marsh
- Channel Islands Habitat – Riparian Woodland, Shrub Brush & Marsh
- Larger Islands Habitat – Areas Containing Agriculture & a Variety of Uses
- Wintering Waterfowl Area
- ★ Hibiscus Californicus – State Candidate for Endangered Species List

ENVIRONMENTAL CONDITIONS

Franks Tract State Recreation Area Optimum Plan

Contra Costa County, California

California Department of Parks & Recreation

Roberts Associates
Landscape Architects & Land Planners

0 1000' 1 Mile 2 Miles 30 ACRES 5

NORTH

NATURAL RESOURCES

Overview

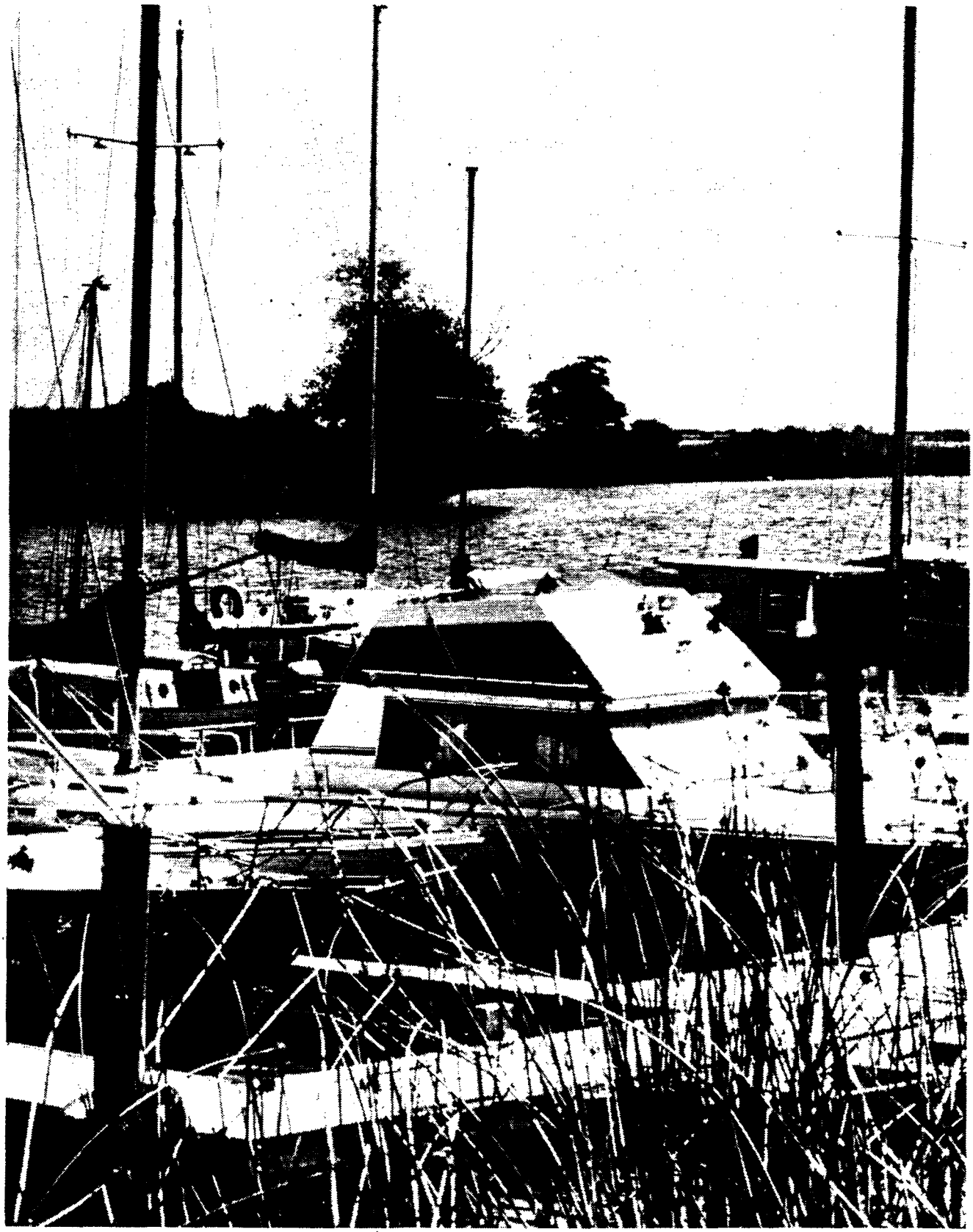
About one third of California - approximately 64,600 square miles - drains into the Sacramento-San Joaquin Delta. Approximately 80 percent of the inflow is provided by the Sacramento River. Additional flow is contributed by the San Joaquin River from the south and the Mokelumne, Cosumnes and Calaveras Rivers entering from the east. The movement of water in the Delta is subject to reversal four times daily due to the tidal cycle. Water quality is heavily dependent upon the influence of freshwater inflows from the rivers, agricultural use within the Delta, and water exports. some anomalous flow reversals in the San Joaquin River are also caused by the strong action of pumps near Tracy that export water via the (federal) Delta-Mendota Canal and (state) California Water Aqueduct.

In addition to water quality (salinity) and water withdrawals, one of the major factors contributing to the loss of fish, plant and wildlife resources has been the destruction of riparian and wetland habitats through reclamation and levee construction and maintenance. Of the million-plus acres of these habitats that once existed in the Delta, less than 20,000 acres remain (U.S. Army Corps, 1982).

The remaining land, wetland, and open water habitats provide important resources to fish and shellfish populations of the Delta as well as habitat for wildlife. The Delta is a critical link in the Pacific Flyway migration route. Waterfowl utilize some types of Delta wetlands, and make extensive use of periodically flooded agricultural areas and open water habitats.

Delta Fish and Wildlife Habitats in Frank's Tract Area

Although habitat characteristics and ecological relationships of the Delta have undergone profound changes, considerable wildlife habitat still exists in the region. Delta habitat types have been classified and mapped by the Army Corps of Engineers (1979) in their Delta Environmental Atlas. The Delta Wildlife Habitat Protection and Restoration Plan (Madrone Associates, 1980 c.f. ESA) simplified this classification of Delta habitats. Description of these habitats are found in Appendix D.



C-101734

VI. Issues and Opportunities

The issues related to the Frank's Tract State Recreation Area are as varied and as complex as those related to the Delta of which it is a part. Many of the issues have been noted on the map Issues and Opportunities. The issues are categorized below under the following general headings: SAFETY, CONSERVATION, and RECREATION.

SAFETY

The Issue

Perhaps the one overriding issue related to Frank's Tract is protection of life and property from levee breaks and the flooding which would result from such breaks. While this report is conceptual in nature, some detailed thought has been given to the question of repair, building and maintenance of levees for they afford the protection desired and, with the variations presented, are also the basis of providing recreation and habitat at Frank's Tract.

The Opportunity

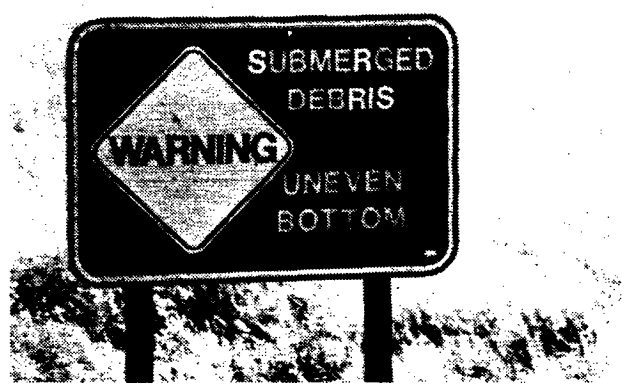
There are three alternative types of construction that could provide increased flood protection to adjacent islands while providing recreation opportunities at the same time. They are:

- construction of new levees
- reconstruction of levee remnants, and
- construction of wave-blocking islands.

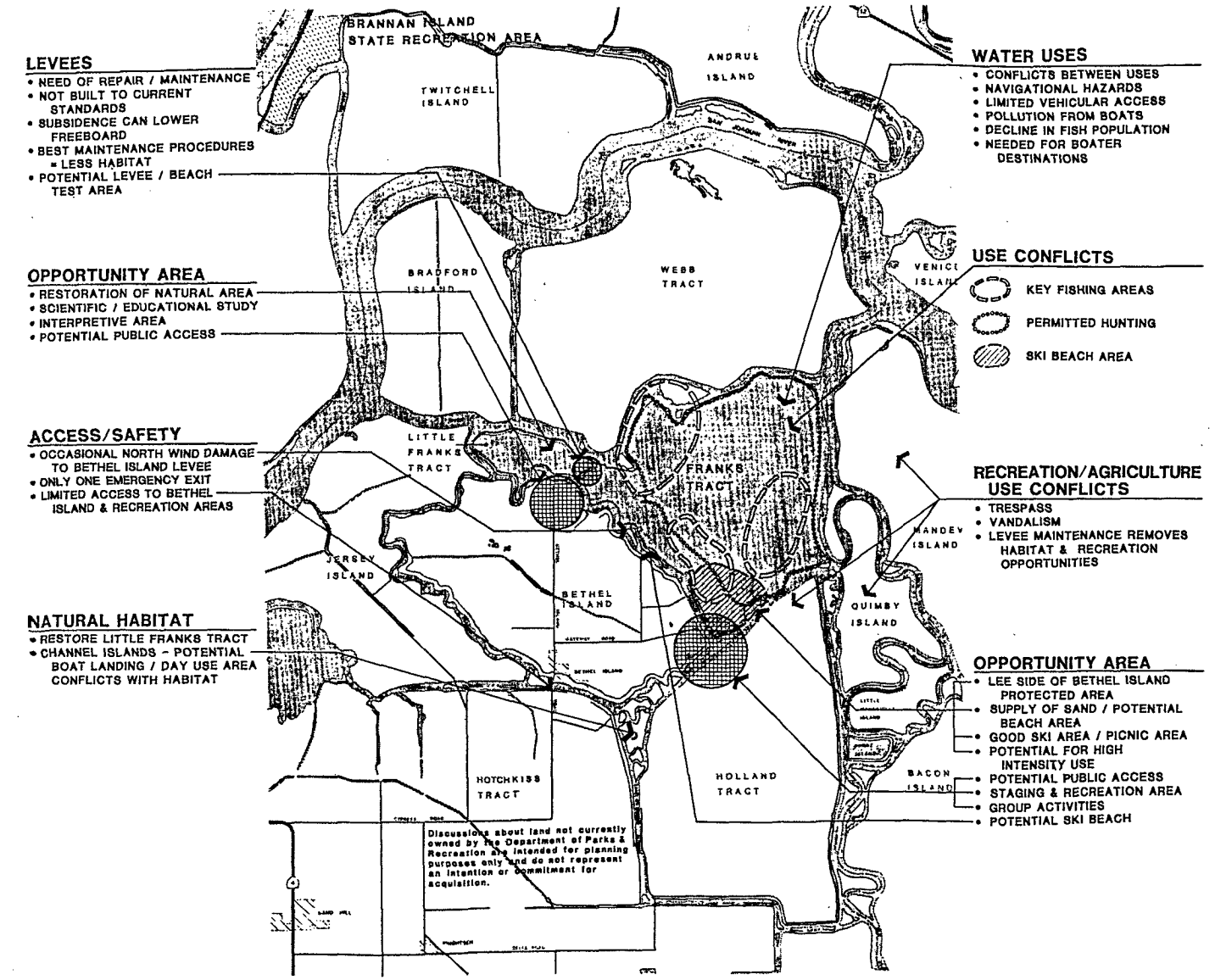
The basic concept for each type of construction is the same in that sand would be used to build a flat slope creating a beach

rather than facing a steep slope with rip-rap to minimize erosion. The typical levee section has water on one side and land (at a lower elevation than the water surface) on the other. The pressure of the water (hydrostatic head) on the levee creates a lateral force which both pushes water through the levee (seepage) and tries to overturn the levee. The purpose of the impermeable material which typically forms the core of a levee is to prevent this seepage through the levee which can weaken the base of the levee causing slumping and structural failure. In accordance with the stated purpose of the Frank's Tract State Recreation Area (see Chapter I: BACKGROUND), it was assumed that the open water now existing will remain. This results in water on both sides of any levee structure or wave-blocking island between Frank's Tract Lake and the adjacent sloughs. Consequently, levee construction can be accomplished using local materials since there will be no hydrostatic head on the structures requiring impermeable materials with sufficient strength to overcome lateral forces and to prevent seepage through the structure. The reclamation of Frank's Tract was not considered in this study.

Discussions with contractors with dredging experience in the Delta indicate that there should be large quantities of sand in the proximity of Frank's Tract, if not in Frank's Tract itself. Experience indicates that sand can be found in the San Joaquin River, False River, Old River and Sand Mound Slough. In addition, there are several sand spoil sites nearby which could be used as a source of sand for projects in Frank's Tract. Contractors with barge loading facilities presently work in the area and, if need be, they could barge sand to the project location. However, the consulting team assumes that adequate material can be obtained within Frank's Tract or the channels adjacent to Frank's Tract.



Probably, the most cost effective method of construction would be to use a hydraulic dredge to transport sand to the project location. Existing dredges can move sand up to 40,000 feet which should be well within the range of sources of sand for projects in Frank's Tract. The unit cost of placing hydraulically dredged sand is $1.50-$2.00/cubic yard. Material would be moved from the source to the project location and placed in sufficient quantities to achieve the specified design height and slope for the structure. It would not be necessary to construct any containment facilities to control the movement of the material. The sand would find its natural slope as it is placed under water. Once the structure is built up to design height, shaping can take place to create a flat slope that is consistent with the grain size distribution-slope relationship appropriate for the source material. The final



ISSUES & OPPORTUNITIES

Franks Tract State Recreation Area Optimum Plan

Contra Costa County, California

California Department of Parks & Recreation

Roberts Associates
Landscape Architects & Land Planners

0 1000' 1 Mile 2 Miles

30 ACRES

NORTH

slope within the tide range will be governed by the hydraulic forces exerted on the structure. (See Appendix F. for a further discussion of beach slope as related to grain size.)

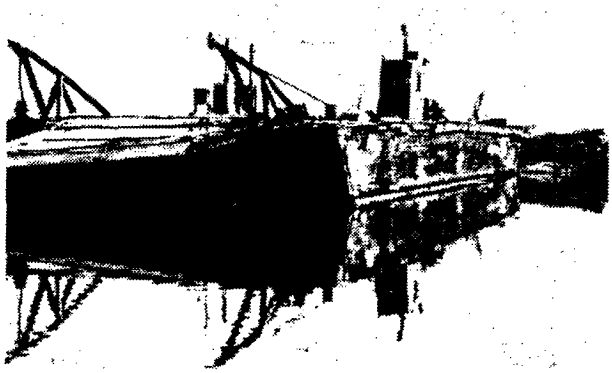
For this study, a beach slope of 10:1 was used for cost estimating purposes. A design slope should be selected following borrow area investigations and collection of core samples which should be analyzed for grain size distribution. Unit costs are provided later in this report for levee remnant reconstruction and wave-blocking islands. If the design slope turns out to be 15:1 rather than 10:1, the unit costs for these projects would increase by 40 percent.

Sand will be lost from the structure due to wave action and it will be necessary to replenish lost material from time to time. It should be understood that some type of active maintenance program will be required to replace lost material. The frequency of such maintenance will depend on the occurrence and severity of storms and the resultant damage to the beach. It would be desirable to encourage vegetation on the higher elevations of the structures to minimize the erosive effects of wind-generated waves at high water stages.

New Levees

There are several locations where the old Frank's Tract levee system is gone. New levees in these locations could be constructed similar to the typical section shown in Figure 7. The unit cost of new levees is estimated to be $300/lineal foot or about $1.5 million per mile.[4] This estimate is based on the assumption that the average elevation of the bottom of Frank's Tract is -10 feet (MSL). There

is little information available on the bottom elevations of the lake and soundings will be necessary in order to develop more accurate cost estimates. Also, elevations of the old levee system are unknown and consequently, it is not possible to accurately estimate the total cost of refurbishing the levee around all of Frank's Tract. There are remnants that could be reconstructed and the cost of building them back up would be less than constructing a new levee. If the State should choose to repair the levee system around Big Frank's Tract, it appears that the total cost of the refurbishing would range between $10-$15 million.



Reconstruction of Levee Remnants

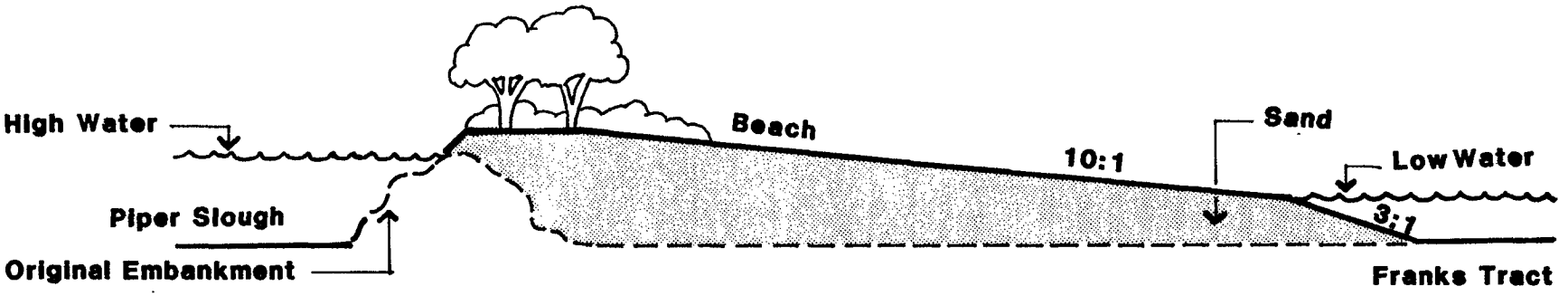
As explained earlier, the existing levee remnants could be built up to afford more protection to adjacent islands from wind-generated waves. Sand could be placed on the Frank's Tract side of the levee remnants to create a flat slope extending out into the lake. The finished levee section would look like that shown in Figure 8. It is not necessary to rip-rap the channel side of the old levee remnant initially. Erosion will continue to eat away at the channel side of the levee but the decision as to whether to rip-rap that slope can be made at a later time after periodic surveys are made which will provide the data needed to compare the costs of rip-rapping the slope versus adding material periodically on the lake side to maintain the desired section. The unit cost of this type of construction will depend on the condition of the remnant. Assuming that half of the original levee section still exists, it is estimated that these projects would cost $100/lineal foot to construct or about $500,000 per mile.[5] The estimate assumes that sand can be pumped and placed at $2.00/c.y. Again, it is noted that this estimate is a rough reconnaissance level cost estimate. Surveys must be made of the levee remnants and the lake bottom to prepare more accurate cost estimates. Also, grain size distribution analysis must be made on the local sand in order to establish the proper slope for the beach.

Wave-Blocking Islands

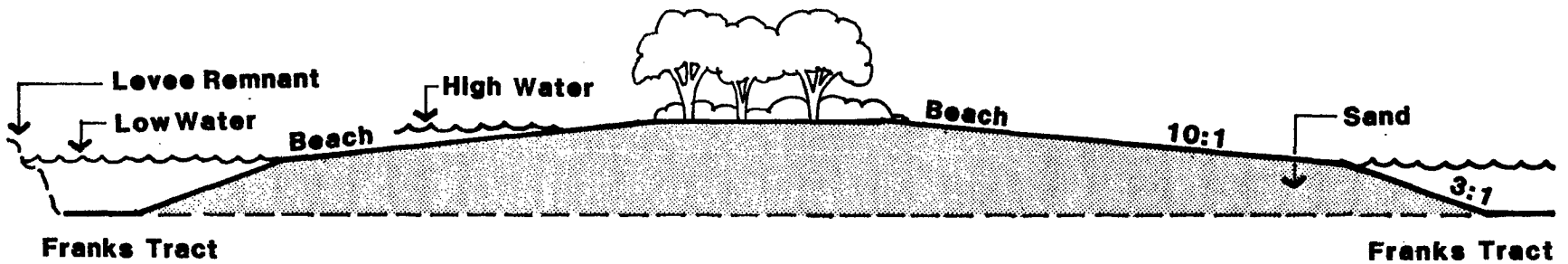
An alternative to rebuilding the old levee where it is gone, would be to construct wave-blocking islands opposite the openings. These islands could be placed in Frank's Tract several hundred feet out in the lake opposite the openings. The island section would look like that shown in Figure 8. The unit cost of this type of construction is estimated to be $200/lineal foot or $1,000,000 per mile.[6] As with the levee remnant reconstruction estimate, this cost estimate is a rough reconnaissance level of detail. Building on unconsolidated peat may increase these costs.

Staged Construction

If funding is limited, construc-



WAVE BLOCKING ISLAND



LEVEE REMNANT RECONSTRUCTION

Figure 8

WAVE BLOCKING ISLANDS &
LEVEE REMNANT CONSTRUCTION
Not to Scale

tion of facilities could be phased to alleviate the more serious problem areas first. Construction of wave-blocking islands should be completed first and then the rebuilding of the more severely deteriorated levee remnants should take place. There is a large opening in the old levee system opposite Bethel Island that is about 4,000 feet in length. A wave-blocking island extending across that opening would cost about $800,000 based on the reconnaissance level costs presented in this report.

Maintenance

Annual costs for levee maintenance are highly variable and range from $4,500 to $14,500 per mile.[7]

As discussed previously, a regular maintenance program will be required to maintain the types of facilities described in this report. The State could perform the maintenance or it could enter into a maintenance agreement with a private contractor. The latter approach would appear to be the most desirable. A dredge of the size needed would cost in the neighborhood of $500,000-$750,000 to build and spare parts that must be on hand would cost another $300,000. In addition, dredging operations are labor intensive requiring an 8-man crew with highly specialized skills. At first glance, it would not appear to be cost effective for the State to get into the dredging business.

Constraints

There are four basic constraints associated with the realization of these types of facilities:

1. Certain levee design criteria must be followed in those cases where Federal funds are used for levee reconstruction. It is unclear whether atypical levee designs can be approved at a conceptual level of design. consequently, while the conceptual design presented in this report may be feasible from an engineering standpoint, it may not be possible to obtain approval for these concepts at this level of detail.

2. The local availability of suitable sand for wave blocking islands and levee remnant reconstruction will affect the cost of facilities. Until borrow area investigations are conducted to determine the quantities available and the grain size distribution, final design cannot be completed and the costs cannot be estimated to a high degree of accuracy.

3. The State has indicated it has no responsibility for the rehabilitation of Frank's Tract levees. Consequently State funding for the construction of such facilities may be difficult to obtain on the basis of providing flood protection to adjacent islands.

4. Maintenance costs for wave blocking islands and levee remnant reconstruction projects could be high compared to costs for more conventional projects where erosion is controlled by rock revetment. If these costs are substantial, there is an issue of which entity should maintain these facilities and how maintenance costs should be shared since the facilities are multiple-purpose projects.

CONSERVATION

The Issue

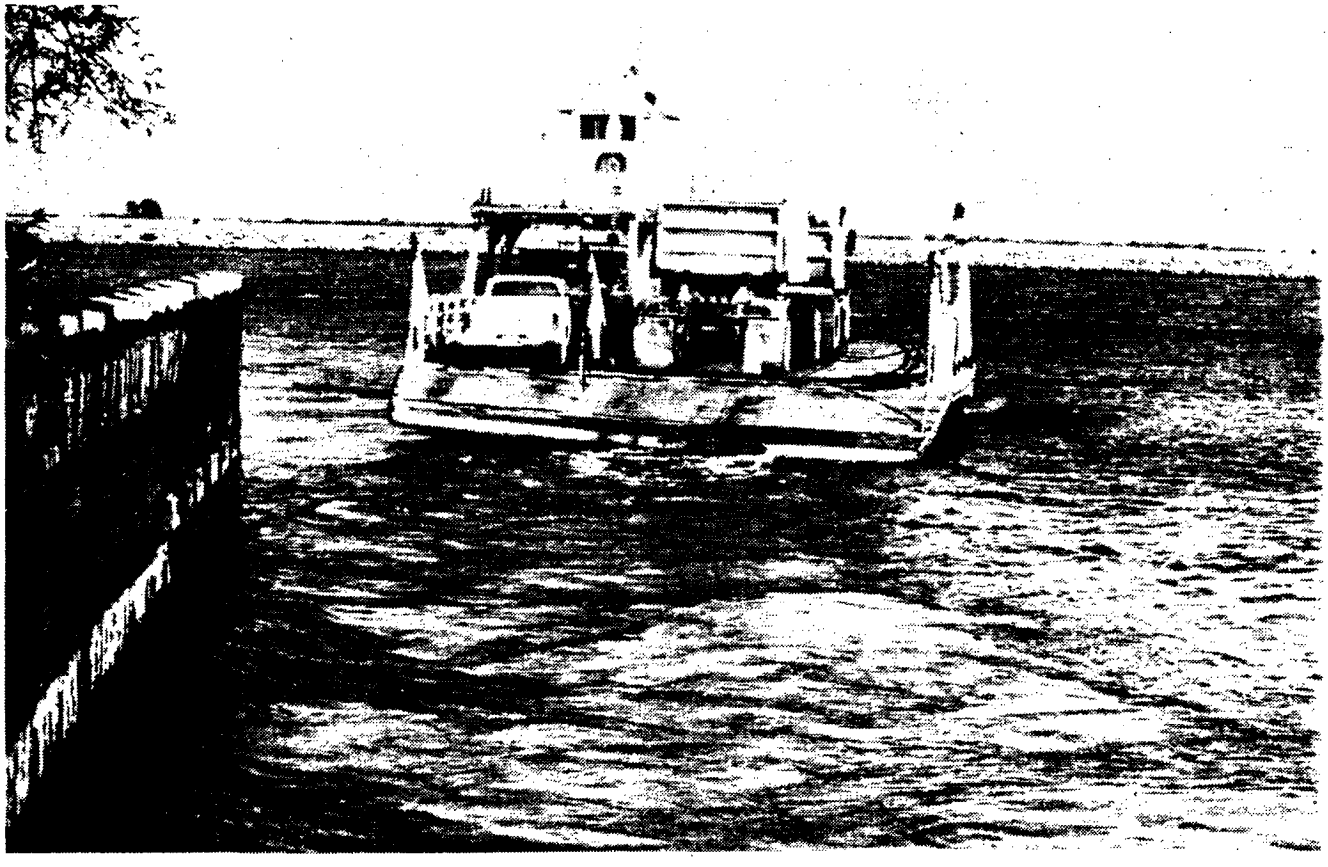
Providing recreation at Frank's Tract will involve establishing boater destination sites ("Boatins"). The obvious nearby destination points are unleveed channel islands and/or the vegetated remnant levees of Frank's Tract, which in their present state of abandonment and semi-isolation, are similar to the islands. As described previously, the channel islands consist of a variety of habitat types for diverse bird species and as critical habitat for the rare and possibly endangered black rail. The California Department of Fish and Game is very concerned about the utilization of any of these islands for recreational purposes.

A potential issue at Frank's Tract concerns the maintenance of multiple-purpose levee projects serving recreation and flood control purposes. Standard maintenance techniques require keeping levee slopes clear of most types of vegetation.

The Opportunity

The habitat at Frank's tract is rich and varied, and it can thrive in harmony with recreation if care is taken in planning.

Frank's Lake is used by several fish species; the open water by migrating ducks. The levee remnants around the lake reveal a variety of vegetation types including freshwater marsh with dense concentrations of tules and reed grass, small areas of



riparian woodland and riparian shrub-brush. In locations of former riprap are brush riprap and herbaceous bank habitat.

Little Frank's Tract, until it flooded in 1981/82, had supported an interior non-tidal marsh with an abundance of waterfowl and some fish and mammals. The area was used for educational purposes and for bird watching by several groups.

Since the projects considered in this study are not the ultimate facilities protecting property and life, standard maintenance practices need not be adhered to on a rigid basis. In fact, vegetation should be encouraged on the wave blocking islands and reconstructed remnants to provide additional stability to reduce the loss of material during times of high water stages coupled with wind action.

Constraints

These islands and remnant levees of Frank's Tract are not equal in their size, habitat conditions or values. To examine possible "boat-in" sites in greater detail, several criteria, or sensitivity rankings, might be applied as a guideline:

1. Islands that contain a combination of riparian habitat and marsh are the most valuable because the complex of habitats provides for maximum diversity of wildlife use, particularly birds that have specialized habitat requirements, such as coopers hawk, or black-crowned night heron.

2. Islands consisting of large areas of unleveed marsh are also very important because of their limited overall extent and because they provide important habitat for the black rail. The interior of these marshes is almost inaccessible on foot; any facilities that encourage access would be considered detrimental by the Department of Fish and Game (see Appendix G.).

3. Riparian shrub-brush habitat located on old riprap levee remnants has less present value than the previous channel island types, but they have potential for greater value as successional stages of riparian woodland occur. Because these old levees are in a developmental (successional) condition, the opportunity exists to set aside and enhance portions for "habitat" and develop other portions for limited "boat-in" use designed on the assumption that on-shore facilities would be restricted in extent.

4. Islands that are developed by dredging of material onto shallow areas would produce the least biotic impacts. These man-made islands would be planted with both riparian and marsh species to hasten the development of a natural and attractive appearance for boaters and also provide a certain amount of habitat value to the area.

Access Points

Three access points related to Frank's Tract, referred to as North Bethel Island, Sugar Barge and Holland Tract were considered. The North Bethel Island site has the greater amount of sensitive habitat in the form of marsh and riparian areas. The sensitivity of this type of habitat to disturbance would necessitate careful development in order to minimize environmental impacts. Conversely, this area can provide interesting op-

portunities for low-key interpretive programs and facilities. To minimize indirect impacts on Little Frank's Tract habitats, the "staging" facilities should be limited to essentials.

The Sugar Barge area has no large areas identified as sensitive habitat. However, the grasslands there provide seasonal wetland habitat for migrating waterfowl, and the small canals and ditches located between fields also provide important wildlife habitat. The Sugar Barge Area has been identified as too restricted by other, non-habitat considerations.

The suggested Holland Tract staging area is primarily an agricultural area. It too provides seasonal habitat for migrating waterfowl; any ditches and canals within the area would also be useful to wildlife. Careful layout and design of facilities would minimize impacts.

The specific impacts of recreation development and their significance at these sites cannot be evaluated effectively until specific proposals are made and in-depth site studies conducted. The North Bethel Island site presents greater limitations for development than the other sites, but also excellent opportunities for a meaningful interpretive program that links all Delta resources to those that can be observed on Little Frank's Tract and on Bethel Island itself.

RECREATION

The Issue

This unparalleled Delta resource which is Frank's Lake is also the core of the challenge to provide additional recreation to the area. First, the Lake and the remnant berms of old Frank's Tract Island, coincident with the State Recreation Area boundary line, are only accessible by water. Second, the remnant berms are either wholly or partially submerged, have dense shrubby growth or provide areas of wildlife habitat. These factors make the berms difficult places to tie up a boat or on which to recreate. The resulting shortage of destinations for boaters (beaches, islands, docks, campgrounds and picnic areas) often creates competition and conflicts over the use of the few destination areas that do exist.

Also a limiting factor; too few points of direct access to the shore of the Lake. In addition, these land-based access points are in private ownership.

The Opportunities and Constraints

The opportunities for recreation at Frank's Tract are tempered by the constraints. The fresh water marsh at Little Frank's Tract must be used with care and visitation should be limited in order to protect wildlife values. The boat-in opportunity areas can provide needed spots to tie boats and to picnic or to swim but must be studied to assure protection of the environmental resource.

C-101745

VII. Future Planning and Management

The State Parks and Recreation Department has owned and managed Frank's Tract State Recreation Area since 1959. This report does not recommend any change in the State having the basic responsibility for the planning and development of the site.

The East Bay Regional Park District (EBRPD) presently has a contractual relationship with the State only for the production of this Assessment Study and Optimum Plan. This contractual arrangement ends with the publication of this plan (December, 1985). Any continuing discussion of the involvement of The EBRPD in the planning and development of Frank's Tract will have to be evaluated based on the requirements of the State. The EBRPD Board would review any such requirements or requests for future involvement by the EBRPD based on District priorities. Any future plans for The Frank's Tract State Recreation Area by the State will, of course, have a direct bearing on future planning by EBRPD for Eastern Contra Costa County.

SOURCES OF FUNDING

The discussion below describes the funding requirements of each of several agencies with interest in the Delta and in Frank's Tract. A major issue concerns the responsibility for the alleged increased maintenance costs and the increased potential for levee failures resulting from the waves generated across the open water of Frank's Tract. The State has taken the position that since it acquired Frank's Tract several years after it flooded in 1938, the State is not obligated to repair the old levee system. It appears that funding for the con-

struction of wave-blocking islands and rehabilitation of levee remnants may be justified only on the basis of recreation potential insofar as State funding is concerned. If that is the case, recreation benefits alone would have to exceed the construction and maintenance costs of such facilities, in the absence of local funds, for them to be economically justified.

Another possibility would be to find local funds to augment State funds for the construction and maintenance of these facilities. Recreation and flood control benefits would have to be estimated in order to determine the feasibility of these projects as well as developing a cost sharing formula for their construction. This is beyond the scope of this study.

The formulation of an Optimum Plan represents one step toward implementation of a long term development and management plan for Frank's Tract State Recreation Area. To pursue the remaining steps through implementation and assure ongoing operation and maintenance will require investment of public funds from various sources.

Proposed steps and actions that will require funding include:

1. Detailed planning and design for Frank's Tract, in conjunction with planning facilities on Holland Tract, and Bethel Island including:

a. levee/berm reconstruction with beaches where appropriate;

b. recreation facilities, including support (parking, sanitation, etc.);

c. interpretive facilities, such as trails, signing, displays.

2. Restoration plan for Little Frank's Tract interior habitat including a levee trail and interpretive facilities.

3. Land acquisition for staging/access point areas and facilities on Bethel Island and Holland Tract.

4. Construction or reconstruction of:

a. levees/berms offshore from Bethel Island;

b. "islands," at several points around Frank's Tract - new or reconstructed from remnant levees;

c. staging area facilities: piers, ramps, sanitary, picnic, etc.;

d. "boat-in" destination facilities: sanitary, picnic beach, tie-ups;

e. interpretive trails.

5. Operation and maintenance: staff, equipment, supplies.

6. Possible local improvements, e.g. road improvements on Holland Tract.

A number of federal, state, and local/regional agencies have continuing interests in the Delta. Some are potentially able to participate financially in one or more of the above steps and actions at Frank's Tract. Others have neither authority nor resources to participate. No agency has "stepped forward" to commit funds or to assume a definite lead role in carrying the Optimum Plan forward. This section gives a cursory review of potential sources: agencies who have defined interests in the Delta which could be applied in or near the Frank's Tract State Recreation Area.

Department of Parks and Recreation (DPR)

The Department is the logical entity to initiate the process of further planning and design for Frank's Tract, since it presently owns and manages the Frank's Tract State Recreation Area. Through the normal budget process, the Department is able to allocate funds for planning, design, construction, and maintenance of recreation facilities inside Frank's Tract State Recreation Area. Facilities outside the present boundaries would require acquisition of additional land. The Department has no present plans to acquire lands in the area. In addition to annual state budget allocations, the Department also has access to State Parklands Bond Act (1984) monies, which can be used for acquisition and facilities development, but cannot be used for maintenance. Two million dollars were reserved for Delta projects, "some" of which remains. The adjunct State Parks Foundation works as a conduit for private donations, with specific conditions on use of grants, bequests, etc. The Department is not able to commit either amounts or timing of funds for further Frank's Tract develdevelopment at this time.

Department of Water Resources (DWR)

The primary objective of DWR's interests in the Delta is water supply, management of that supply and flood control. To the

extent that levee maintenance and multiple uses of levees are integral to that objective, DWR also provides limited assistance in private (non-project) levee maintenance. As outlined earlier (Maintenance of Levees), DWR administers "Way Bill" funds to assist local districts in routine maintenance. The total annual fund of $2,000,000 generally has not been sufficient to meet all requests, so it is prorated to meet those considered eligible. DWR is "pessimistic" about allocating additional funds for repair of remnant levees around Frank's Tract.

Wildlife Conservation Board (WCB)

The small staff of WCB works in close conjunction with the Department of Fish and Game to administer funds which promote both protection and consumptive enjoyment of the State's fish and wildlife resources. WCB negotiates land acquisitions, and provides funds for design and construction of public facilities such as boat launching ramps, fishing piers, and support facilities. No funds or staff are allocated to construction management or ongoing maintenance. Out of the $5 million allocated to WCB from Parklands Bond Act (1984), $3 million are already committed to coastal piers. WCB also administers funds from the 1984 Fish and Wildlife (Wetlands) Bond Act (Proposition 19). These are not available for recreation facilities associated with fish and wildlife, but for acquisition and enhancement of habitats only.

WCB staff and operations are entirely supported by Pari Mutual funds ($750,000 per year), leaving small amounts available for participation in local or regionally sponsored and managed projects. By Board policy, no funds are spent inside existing State Recreation Areas, but assistance could be provided for public facilities on Bethel Island or Holland Tract, managed by another agency. The Board has funded several small projects in the vicinity: on the Sacramento River and at Antioch.

Department of Fish and Game (DFG)

Many of the Department's funding activities are administered by the Wildlife Conservation Board. However, DFG is administering (a portion of) the Fish and Wildlife (Wetlands) Bond Act (1984) monies, reserved for acquisition of critical habitat and/or enhancement and restoration. The only portion of the Frank's Tract Optimum Plan that would qualify would be restoration of riparian habitats on levees or wetland habitat in the interior of Frank's Tract. Other habitat enhancement in association with recreation would probably not qualify. The DFG Region 2 office would in fact object to proposed recreation facilities ("boat-ins") that might encroach on wildlife habitats. The request for funds for restoration could be initiated at either the regional level or through the Department planning (or other) branch. It is doubtful that DFG would expend funds for management responsibilities in Frank's Tract beyond their present hunting and fishing regulation enforcement roles.

Department of Boating and Waterways

Boating and Waterways has very limited funds which can be made available for loans (for pro-

posed private marinas that pass feasibility and environmental tests) and assistance in small projects that demonstrate positive public benefits. When the site is improved and the land ownership is resolved by others, the Department could consider participation in the funding of boating facilities to be located on Holland Tract. Assistance in the development of "boat-in" facilities would be considered once the land mass is built and stabilized.

Other State Agencies or Funding Sources With Delta Interests

Those agencies which have neither authority nor programs for funding projects such as those proposed in the Frank's Tract Plan include State Reclamation Board, State Lands Commission, and Office of Emergency Services (who respond only to emergencies).

Federal Agencies With Delta Interests

Potential federal assistance in implementing Frank's Tract Plan poses complex interactions with the State, and has been explored in a preliminary manner only. Those agencies which would definitely not provide funds include the U.S. Coast Guard, U.S. Bureau of Reclamation, and National Marine Fisheries Service. The Army Corps of Engineers, who construct and maintain "project" levees on the deep water ship channels (in cooperation with the State), probably would not offer direct financial assistance. The Corps shares with the State on a 50/50 basis the costs of developing recreation on project levees. Indirectly, the Corps could conceivably make dredge spoils available for levee or small island construction in Frank's Tract.

The Federal Emergency Management Agency (FEMA) provides financial assistance in levee reconstruction or maintenance only if certain past maintenance standards can be demonstrated and a hazard management plan is prepared. The agency has indicated that they probably would not provide funds for the reconstruction of remnant levees across Piper Slough from Bethel island.

U.S. Fish and Wildlife Service is able to acquire and manage important wildlife habitat areas as part of their National Wildlife Refuge System. However, their traditional source of funds (The Land and Water Conservation Fund) has suffered major budget reductions and has all but disappeared. Other funding sources and programs available to USFWS have not been identified, with the exception of federal wetlands funds whose disposition is not yet known (Chaffee Bill).

C-101750

C-101751

VIII.
Appendices and Footnotes

C-101752

C-101753

Footnotes

[1] Edilberto Z. Cajucom and Associates, Delta Outdoor Recreation Survey (Sacramento: Department of Water Resources, March 1980).

[2] BIMID, "Report on Restoration of Frank's Tract Levees," Feb. 8, 1984.

[3] Department of Water Resources, "Bethel Levees Investigation," Bulletin 192-82, Dec. 1982.

[4] Larry Davis, Personal Communication with Levee Reconstruction Contractors: Harry Stewart of Dutra Construction and; Doug Comstock of Shellmaker, Inc.

[5] Ibid.

[6] Ibid.

[7] Department of Water Resources, "Delta Levees Investigation," Bulletin 192-82, Dec. 1982.

C-101755

Appendix A: Workbook
Workshop 2
(Summary of Workshop 1 Questions: Workshop 2)

WORKSHOP STUDY GUIDE

FRANKS TRACT OPTIMUM PLAN

WORKSHOP II

NOVEMBER 7,1985

7:45 P.M. to 10:15 P.M.

DELTA COMMUNITY SERVICE CENTER

MULTI - PURPOSE ROOM

730 3RD ST.

BRENTWOOD, CA

FOR

EAST BAY REGIONAL PARK DISTRICT

BY

ROBERTS ASSOCIATES PLANNING TEAM

C-101756

October 25, 1985

Dear Workshop Participant:

On October 19, 1985, Roberts Associates, working for the East Bay Regional Park District, conducted a workshop as part of a planning study of Franks Tract State Recreational Area. Participants used a workbook which contained background information and a series of questions. The conclusions reached at the first workshop helped form alternatives for the future of Franks Tract State Recreation Area, including the area known as Little Franks Tract. Conclusions of the first workshop and alternatives to be discussed at the second workshop are presented on the following pages.

Questions discussed at the first workshop are repeated in the first section of this workbook. Each question is followed in **BOLD CAPITAL LETTERS** by the conclusion reached by participants. In some cases, consensus among the participants was strong; in other cases, consensus was not achieved.

Following the results of the first workshop is a section on alternatives. Some of these were discussed at the first workshop and are expanded here for further discussion. Other alternatives are based on suggestions made by the consultants or others.

As with the first workbook, participants are asked to look it over in advance, mark points of particular interest and make notes of additional issues to bring up. Any suggestions for additional alternatives for future use of Franks Tract should be noted and brought up at the workshop.

The workshop will be held in Delta Community Service Center Multi-purpose Room, 730 Third Street, Brentwood (parking is on Oak Street), on Thursday November 7, 1985. The workshop will begin at 7:45 P.M. and end at 10:15 P.M. The format will be similar to that of the first workshop. Everyone will be encouraged to share in making decisions about the future of Franks Tract State Recreation Area, which is so important to the region.

Thank you for your interest and participation. Participants of the first workshop did a good job and hopefully will be able to continue their interest. Those who were unable to make the first workshop are urged to attend the second workshop.

If you have any questions or comments, please call:

Dennis Beardsley, East Bay Regional Park District (415) 531-9300
or Bob Ironside, Roberts Associates Planning Team (415) 835-4798

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I ISSUES AND OPPORTUNITIES

The issues related to the Franks Tract State Recreation Area are as varied and as complex as those related to the Delta, of which it is a part. For discussion at the first workshop, the issues were categorized under the following general headings: safety, conservation, recreation and access.

Issues and related questions discussed at the first workshop are repeated in this section, followed by * **BOLD CAPITAL LETTERS WHICH INDICATE THE CONCLUSION REACHED BY WORKSHOP PARTICIPANTS.**

A. SAFETY

Delta residents and property owners share in common a concern about personal safety and safety of property. This concern is based upon the nature of their habitat which is protected from flooding by levees that are under constant pressure from natural forces. Following is listing of topics under this general heading:

1. Levee Safety

A primary concern for Bethel Island and other surrounding islands is the threat to the levees caused by wave action from Franks Tract. This threat is felt to have been increased since the flooding of Little Franks Tract increased the open water area.

In the case of major channels, where there are widespread benefits, Delta levees are "project levees", maintained at public expense. The other levees generally are the responsibility of private property owners that benefit from the protection of the levees; these are "non-project" levees.

The State has accepted responsibility for the Little Franks Tract levees but not for the other levees in the Recreation Area.

a. Which actions seem to be practical and effective for further consideration?

1) Improve the island levees, such as those around Bethel Island.
* **THERE IS CONCERN THAT RECREATION USE CONTRIBUTES TO LEVEE DAMAGE**

What source and type of material
* **LOCAL SAND AND ROCK ON CHANNEL SIDE**

2) Repair the remnant Franks Tract levees
* **THIS WAS GIVEN HIGHEST PRIORITY**

In which locations? * **AREAS NOTED WERE ADJACENT TO BETHEL ISLAND AND HOLLAND TRACT**

LITTLE FRANKS TRACT

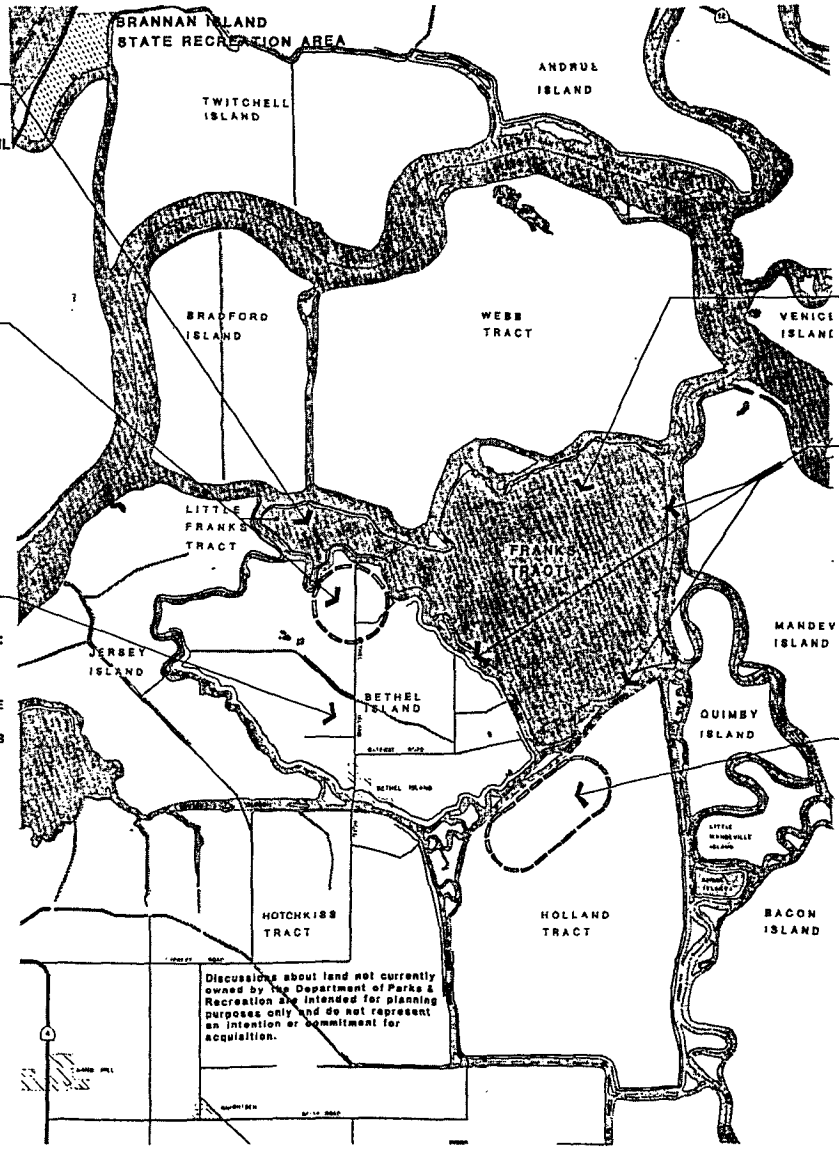
- NATURE PRESERVE – GOOD NATURAL HABITAT
- ACCESS BY BOAT ONLY
- SELF GUIDED INTERPRETIVE TRAIL
- POSSIBLE BEACH ON EAST END

NORTH BETHEL ISLAND

- GOOD ACCESS POINT TO LITTLE FRANKS TRACT
- AREA HAS DESIRABLE NATURAL CHARACTERISTICS & IS AN AREA OF SENSITIVE HABITAT
- POSSIBLE STAGING AREA
- POSSIBLE CAMPGROUND
- POSSIBLE VISITORS CENTER

BETHEL ISLAND

- PRESERVE NATURAL AREAS OF THE ISLAND
- DEVELOPMENT TO BE SENSITIVE :
  - ROAD CAPABILITIES
  - PUBLIC SERVICES – POLICE & FIRE
  - AVOID CONFLICT WITH PRIVATE PROPERTY
- POSSIBLE PUBLIC BEACH ACCESS
- NO PUBLIC MARINA
- POSSIBLE PUBLIC DOCK & BOAT RAMP
- RESTROOMS ARE NEEDED WITH ANY NEW FACILITIES



WATER QUALITY

- WATER APPEARS CLEARER NOW THAN 10 YEARS AGO
- FEWER FISHING BOATS NOW THAN IN THE PAST
- MORE LARGE BOATS NOW THAN IN THE PAST
- DECREASED FISH POPULATION

FRANKS TRACT

- MANAGE HUNTING
- BOATING HAZARDS IN LAKE
- MORE PEOPLE REQUIRE MORE LAW ENFORCEMENT

LEVEES

- REBUILD TO PROTECT BETHEL ISLAND
- USE MATERIAL IN FRANKS TRACT FOR REBUILDING LEVEES
- NEED CONSTANT MAINTENANCE
- POSSIBLE LEVEE/BEACH
  - RETAIN ADEQUATE DISTANCE FROM BETHEL ISLAND FOR NOISE PROBLEMS
  - TREES ON LEVEE/BEACH
- POSSIBLE ISLANDS IN LAKE CLOSE TO BETHEL ISLAND
  - WAVE PROTECTION
  - BEACH/BOATER DESTINATION

HOLLAND TRACT

- POSSIBLE STAGING AREA
  - CAMPGROUND
  - BEACH & PICNIC AREA
  - DOCK & RAMP
- WOULD NEED A NEW BRIDGE & IMPROVED ROAD TO HOLLAND TRACT

WORKSHOP ONE SUMMARY MAP

Franks Tract State Recreation Area Optimum Plan

Contra Costa County, California

California Department of Parks & Recreation

Roberts Associates
Landscape Architects & Land Planners

0 1000' 1 Mile 2 Miles

30 ACRES

NORTH

What source and type of material? * OPINION THAT THERE IS AN ADEQUATE SUPPLY OF SAND IN FRANKS TRACT; ALSO MENTIONED THAT PEAT COULD BE USED TOO

3) Construct wave-blocking islands in Frank Tract Lake * STRONGLY SUPPORTED

In which locations * NOTED WERE: SHALLOW AREAS, EASTERLY END OF LITTLE FRANKS, NORTHERLY END OF HOLLAND TRACT, NORTHEAST SIDE OF BETHEL ISLAND

What source and type of material? * LOCAL SAND WITH PEAT AND IMPORTED ROCK AS BASE; SOME DISCUSSION OF CONSIDERATION OF SHEET PILING

4) Any other measures worth considering? * SOME DISCUSSION OF USING SURPLUS VESSELS AS BREAKWATER

5) Would it make sense to develop a demonstration project to get experience on costs and benefits of one or two types?
* SOME SUPPORT BUT MANY SAID "JUST DO IT, DON'T NEED DEMONSTRATION"

b. What are the potential multiple benefits to be combined with safety improvements, such as benefits to recreation, conservation, access? For example, flat sand berms to break wave action also would be beaches for water recreation. MANY WERE MENTIONED:

* DREDGING ENHANCES FISHING AND BOATING SAFETY

* BUILDING UP BERMS INCREASES SAFETY AND PROVIDES BEACHES FOR WATER ACCESS FOR FISHING, FOR BOATERS/SWIMMERS AND PROVIDES SHELTERED DESTINATIONS

* ISLANDS INCREASE BOATER SAFETY AND COMFORT BY REDUCING ROUGH WATER

* ISLANDS COULD ENHANCE FISH SPAWNING AND NURSERY AREAS

3. Water Quality

There is concern with the upstream intrusion of salt water, the drainage of pesticides and waste water into Delta waters, and the reduced quality of domestic water taken from deep wells. All of these are subjects of scientific investigation.

a. What are your feelings about whether or not water quality presents any limitations on potential use of Franks Tract. * FEEL THAT WATER QUALITY DECREASES AS PUMPING UPSTREAM INCREASES

C-101761

* WORST CASE WOULD BE ISLAND FLOODING IN SUMMER; NO FLUSHING ACTION

* CONCERN WITH PESTICIDES DRAINING INTO WATER

* GENERAL FEELING THAT WATER QUALITY IS IMPROVING

b. Could increased use of Franks Tract have an adverse effect on water quality? * CONCERN WITH POLLUTION POTENTIAL - SEWAGE, REFUSE, LITTER, ETC.

* NEED TO MAINTAIN FLUSHING ACTION

4. Boating Hazards

There is concern about boating hazards in Franks Tract and fear that additional use may increase boating accidents. Depths of water range from 3' to 10' at low tide and 9' to 16' at high tide.

There is additional concern that different types of uses such as speedboat, sailboat, fishing, skiing, sailboarding, hunting, may conflict with one another to the point of creating a hazard.

a. Does the water depth of Franks Tract create a particular hazard that might limit its use? * YES BUT NOT ALL FELT THIS WAS NEGATIVE AND ACTUALLY MAY ENHANCE THE AREA FOR SMALL SAILBOATS AND WINDSURFING

* OTHERS FELT THE AREA WAS TYPICAL OF INLAND WATERS WHERE CAUTION IS NECESSARY; SOME FELT SOME DREDGING AND MARKING WOULD BE BENEFICIAL

b. With your local knowledge, which areas tend to present great hazards? * NOTED WERE DUCK BLINDS, AND SHALLOW AREAS CLOSE TO SHORE AND TO ISLANDS

c. Should there be limits placed upon certain uses in certain locations to reduce the conflicts; or is there enough room for all?
* HUNTING WAS MENTIONED MOST FREQUENTLY WITH STRONG SUPPORT FOR INCREASED CONTROL OR PROHIBITION

* CONCERN WITH FAST BOATS AND LARGE BOATS CAUSING WAKE DAMAGE TO LEVEES AND HAZARDS TO SMALLER BOATS

* WATER SKIING IS NOT SEEN AS A PROBLEM BECAUSE SKIIERS PREFER CHANNELS, SUCH AS TAYLOR SLOUGH; FRANKS TRACT IS CONSIDERED NOT DESIRABLE

C-101762

B. CONSERVATION

1. Many feel that Franks Tract offers natural and scenic qualities typical of the Delta environment.

a. Are there opportunities in Franks Tract to conserve the existing environment, or even to enhance the environment? * YES

1) In what ways - planting , restricting human use? * STRONG SUPPORT FOR INCREASED NATURAL VEGETATION TO ENHANCE HABITAT, IMPROVE SCENIC QUALITY AND PROVIDE SHADE

* BUILDING WAVE-BLOCKING ISLANDS ALSO WOULD ENHANCE FISH AND BIRD HABITAT

2) Are there certain areas where conservation should have priority, such as Little Franks Tract; other areas? * VERY STRONG SUPPORT FOR RETURNING LITTLE FRANKS TO NATURE PRESERVE AND LIMITING HUMAN USE OF THE AREA

* SUPPORT FOR LETTING SOME SHALLOW AREAS CONTINUE TO SILT UP THEREBY RESTRICTING HUMAN USE AND ENHANCING HABITAT VALUE; NORTH SIDE OF FRANKS TRACT WAS GIVEN AS AN EXAMPLE OF HABITAT FOR WATERFOWL AND A VARIETY OF MAMMALS

3) Is it appropriate to exploit the natural resources by establishing an interpretive facility; or limit use to low key educational programs? * MIXED REACTION - SOME SUPPORT FOR INTERPRETIVE FACILITY; OTHERS PREFERRED LOW KEY INTERPRETATION WITH SIGNS AND PAMPHLETS

* TOURS WOULD BE OK IF SUFFICIENT DEMAND

4) What features of natural or visual interest should be preserved or enhanced when planning for Franks Tract? * STRONG SUPPORT FOR PRESERVING DELTA QUALITY WHICH INCLUDES RURAL CHARACTER, NATURAL VEGETATION, EXPANSE OF WATER, FISH AND WATERFOWL

C. RECREATION

1. Increased Use

Implementation of a plan for Franks Tract could result in increased recreation use of the Area and a corresponding increase in the number of visitors to Bethel Island and its vicinity.

C-101763

a. What particular qualities of the Delta must be taken into account when planning for Franks Tract? * NATURAL HABITAT, RURAL CHARACTER, FISHING AND BOATING OPPORTUNITIES, HIGH WIND AND WAVES, LIMITED PUBLIC ACCESS TO WATER, INTRUSION OF PUBLIC ONTO PRIVATE PROPERTY

b. What concerns for Bethel Island residents and businesses must be taken into account? * RESIDENTS DESIRE RETENTION OF RURAL CHARACTER, POTENTIAL PROBLEMS WITH VISITORS SUCH AS TRESPASSING, CRIMINAL ACTIVITY, LITTERING

* INCREASED NEED FOR PUBLIC SAFETY

c. Other than Bethel Island, which areas are most likely to be affected, and to what extent? * HOLLAND TRACT AND JERSEY ISLAND, EXTENT DEPENDS ON ACCESS POINTS AND LOCATION OF STAGING AREA(S), IF ANY

2. Types Of Activities

It has been mentioned that Franks Tract offers a unique resource and opportunities for a range of recreation activities. Logically, the types of activities given emphasis should be closely related to the resource and its unique character.

Following is a list of activities. Please mark all of those that seem to you to be desirable and appropriate for Franks Tract. Also list the support facilities (access, parking, launching, tables, restrooms, etc.) that would be needed for each use you mark. Also note those activities that are not appropriate.

USE			SUPPORT FACILITIES	
	OK	NOT OK	LAND	WATER
power boating	X	.....	MARINA; DOCKS DESTINATIONS	WAKE CONTROL SANITATION
sailing	X	.....	.....".....	.....".....
houseboating	X	.....	.....".....	.....".....
wind surfing	X	.....	ACCESS, PARKING	
swimming	X	.....	ACCESS, PARKING	PROTECTION SANITATION, PICNIC
water skiing	X	.....	ACCESS, PARKING	
hunting	.....	X	(PROHIBIT OR RESTRICT)	
fishing	X	.....	NEED BANK FISHING FACILITIES ACCESS PARKING	

USE	OK	NOT OK	SUPPORT FACILITIES LAND	WATER
boat camping	X	.....	SANITATION	.....
drive up camping	X	.....	ALL FACILITIES	.....
walk in camping	X	.....	.....".....	.....
RV camping	X	.....	.....".....	.....
trails/nature walks	X	.....	LITTLE FRANKS ACCESS. SANITATION	.....
sports fields	.....	X	.....	.....
swimming pool	.....	X	.....	.....
court games	.....	X	.....	.....
exhibits	.....	X	.....	.....
visitor center	.....	.....	NO CONSENSUS	.....
boardwalks	.....	X	.....	.....
conf. facility	.....	.....	NO CONSENSUS	.....
other:	.....	.....	.....	.....
FERRY-IN CAMPING	X	.....	SANITATION..	.....
PUBLIC BOAT RAMPS	X	.....	PARKING, SANITATION	.....
KIDS BEACH	X	.....	...."....." PROTECTION.	
PEOPLE FERRY	X			

Mark on the map any ideas you have about good locations for the above uses. * REFER TO ATTACHED MAPS

3. Combining recreation and safety improvements

Based on the assumptions that more destination areas are desired and that safety improvements are needed, are there sensible ways to design improvements to serve two or more functions?

a. build wave blocking islands * FOR SAFETY, RECREATION AND HABITAT

C-101765

b. permit more vegetation on islands; on levees * PREFER NATIVE VEGETATION FOR SCENIC AND HABITAT VALUE, AND FOR SHADE

c. rebuild remnant levees with beaches on one side * STRONGLY FAVORED

d. redesign existing levees to encourage more use

1) camping * NO

2) fishing * POSSIBLY

3) access to the water * YES

4) launching areas * NO CONSENSUS

4. Boat Berths

Assuming increased recreation use of Franks Tract, as well as increased local population in the future, there probably will there be a need for more boat berths in the area.

a. Should berths be constructed in Franks Tract * NO, BUT POSSIBLE EXCEPTION COULD BE OTHER THAN BETHEL ISLAND

b. Should future berthing needs be met by public marinas or by private facilities; does it matter? * PREFER PRIVATE

5. Brannan Island

a. Brannan Island is the State Recreation Area nearest to Franks Tract. Does it provide any positive or negative examples that could help us in planning for Franks Tract? For example:

1) * POSSIBLE STAGING AREA FOR FRANKS TRACT

* NEED FOR WIND PROTECTION

* NO CONFLICT WITH RESIDENTIAL USE

* FULL RANGE OF FACILITIES

6. Farming

Frequently, in rural areas there are conflicts between agricultural and recreational uses.

a. Is this the case in Franks Tract? * NOT PERCEIVED AS A PROBLEM

b. Are there examples of ways to avoid or minimize conflicts? * N.A.

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7. Crime

Contra Costa County Sheriff Deputies patrol the land and water of the Delta within the County.

a. Are there police problems that are likely to increase with increased use of Franks Tract? * YES BUT NOT SEEN AS AN UNUSUAL PROBLEM; CONCERN EXPRESSED FOR ABILITY OF FIRE DEPT. TO DEAL WITH INCREASE DEMAND...ABOUT 1/3 OF THEIR WATER CALLS ARE TO FRANKS TRACT

b. Can steps be taken to minimize these problems? * YES; INCREASED PATROL, STRONGER ENFORCEMENT, MORE CITATIONS

8. Little Franks Tract

The levees around Little Franks Tract are in the process of being repaired. This will create the potential for returning this portion of the State Recreation Area to its previous marshy condition which made it a popular area for scientific and educational use, as well as an area for nature conservation.

At one time the area was considered as the major access point to Franks Tract because of its higher ground and proximity to Bethel and Jersey Islands. In recent years, several groups and individuals favored its designation as a Natural Preserve.

a. What use or uses do you favor for this area

1) Natural Preserve * STRONG SUPPORT

2) Access area * FERRY FROM BETHEL ISLAND AND PRIVATE BOAT ONLY

3) Multiple use * PREFER MINIMUM IMPACT ON NATURAL AREA

4) Visitor center * LITTLE SUPPORT

5) Interpretive center * LITTLE SUPPORT

6) Would you rather wait and see some proposals N.A.

b. Access to Little Franks Tract should be by

1) Bridge * NO

2) Ferry * YES

3) Other boat * YES

9. Visitor Center

Management and enjoyment of a recreation area can be aided by a properly located, designed and supplied visitor center.

a. Would such a facility be appropriate in Franks Tract? * MINUMUM

b. Any suggested location? * NORTH END OF BETHEL ISLAND; HOLLAND TRACT

c. Should the center be for Franks Tract or oriented to a larger area of the Delta? * SOME SUPPORT FOR LARGER ORIENTATION

D. ACCESS

Franks Tract State Recreation Area is accessible only by water. The Sacramento and San Joaquin Rivers, which converge near Antioch, are within a few miles of Franks Tract, as is the Stockton Channel.

Land access to the edge of Franks Tract is via State Route 4 to Bethel Island. Existing roads on Jersey Island and Holland Tract extend to the west and east edges of Franks Tract.

Improvement of Franks Tract and resulting increased use will require appropriate access, possibly to a central staging area, or entrance. If it is determined that Franks Tract should remain a water access only facility, then road access may not have primary importance.

1. How do you feel about the primary access issue; should Franks Tract be designed as a water access only facility? * SOME SUPPORT

2. If road access, entry and focal point are desired, should this be located on

   a. Bethel Island, Jersey Island, Holland Tract, or some combination thereof? * STRONG SUPPORT FOR DISPERSED ACCESS, EACH OF THE ABOVE HAS POTENTIAL

   b. What are some of the main factors in your decision. * DISPERSE ACCESS FOR MINIMAL IMPACT; EACH ACCESS COULD SERVE DIFFERENT FUNCTION

      * BETHEL ISLAND HAS BEST EXISTING ACCESS AND SERVICES; AND IS ADJACENT TO FRANKS TRACT AND LITTLE FRANKS TRACT

      * JERSEY ISLAND HAS EXISTING FERRY, IS ADJACENT TO LITTLE FRANKS BUT ACCESS IS DIFFICULT

      * HOLLAND TRACT IS ADJACENT TO FRANKS TRACT. ACCESS WOULD HAVE TO BE IMPROVED BUT THERE ARE POTENTIAL SITES FOR STAGING AREAS AND THERE WOULD BE NO CONFLICTS WITH RESIDENTIAL USE

c. If you prefer Bethel Island as the access point, which part of Bethel Island? NORTH END OF BETHEL ISLAND ROAD AND SUGAR BARGE AREA

d. Assuming road access will cause some impacts, what mitigations should be considered? INCREASE BETHEL ISLAND BRIDGE CAPACITY; AVOID CONFLICTS WITH EXISTING AND POTENTIAL RESIDENTIAL USE

3. Should park facilities include a ferry? YES, STRONGLY SUPPORTED

C-101769

II. ALTERNATIVES

Based on the conclusions reached at the first workshop, the Planning Team has formulated several alternatives to be considered for Franks Tract State Recreation Area. These alternatives include access/staging areas, wave-blocking islands with beaches, and a range of facilities and services that could be considered. The map on the following page illustates alternatives to be discussed. The illustrated alternatives are to stimulate, not limit, discussion; new ideas are encouraged.

The alternatives map also contains a description of the primary alternatives and a brief analysis of the illustrated staging areas. Following the map is a chart which lists the types of facilities which could be included in a staging area.

It should be kept in mind that, at this time there is no schedule for developing a staging area, if one or more is desired. So, participants should be open to considering opportunities and needs that may be either short range (five years), or long range (twenty years).

A. Staging Area Definition

Before determining locations for staging areas it would be appropriate to establish a definition. It is assumed that a staging area would be public property, accessible to all persons. Beyond that, please review the chart on page 14 and mark those facilities that should be included. Keep in mind that some facilities may be appropriate at one location and not at another.

Feel free to add desired facilities that are not listed.

LITTLE FRANKS TRACT

- NATURE PRESERVE
- INTERPRETIVE TRAIL
- ACCESS
  - FERRY
  - PRIVATE BOAT
  - PUBLIC BOAT RENTAL
- COURTESY BOAT DOCK
- BEACH ON EAST SIDE
  - RESTROOMS
  - TRASH CONTAINERS

BOATER DESTINATIONS

(A) FRANKS TRACT LEVEE ADJACENT TO BETHEL ISLAND: RESTORE LEVEES, BUILD WAVE BLOCKING ISLANDS, BEACHES WITH TREES WHERE APPROPRIATE.

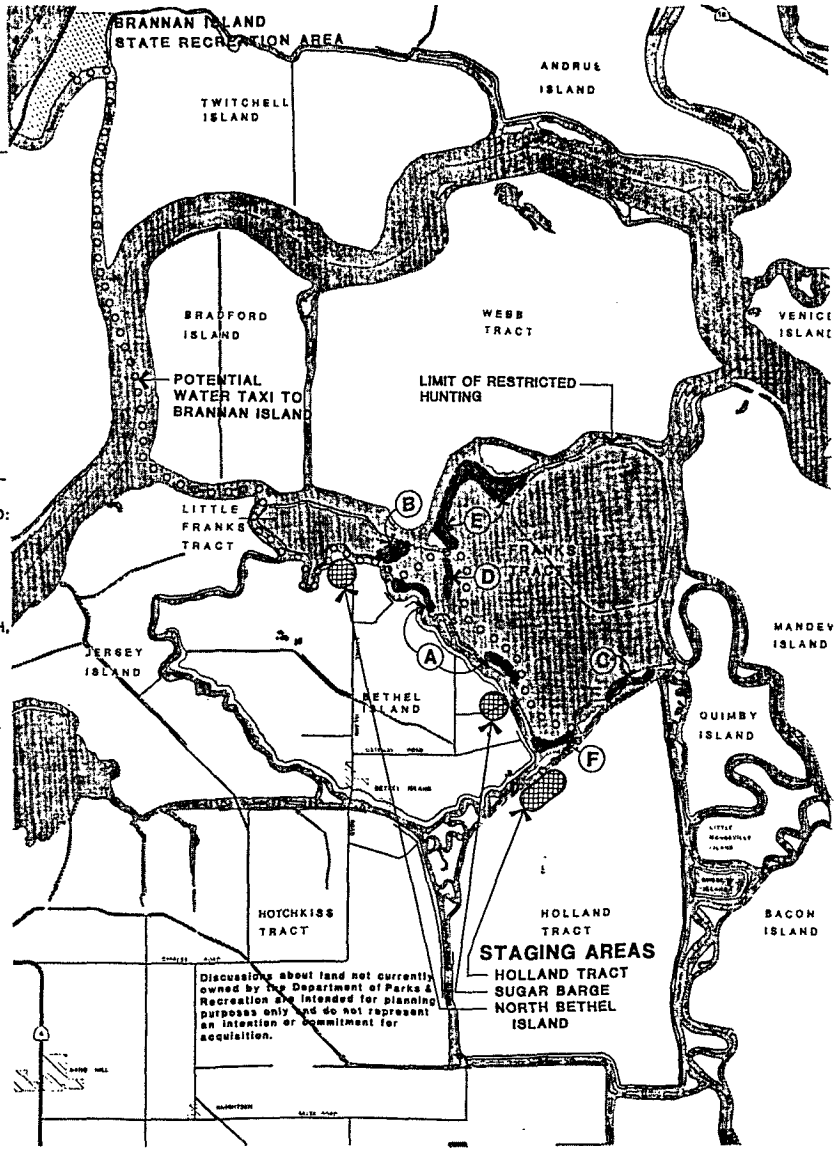
(B) LITTLE FRANKS TRACT MULTIPLE USE LEVEES, BEACH, RESTROOMS.

(C) FRANKS TRACT LEVEE ADJACENT TO HOLLAND TRACT: REBUILD LEVEES FOR MULTIPLE USE, BEACH, TREES.

(D) ENLARGE MANDY'S ISLAND: BEACH, TREES.

(E) FRANKS TRACT NORTH LEVEES: BEACH, TREES.

(F) SAND MOUND/PIPER SLOUGH CONFLUENCE: BEACH, PICNIC, TREES, POSSIBLE WETLANDS.



HUNTING

- LEAVE AS IS - 2000' FROM BETHEL ISLAND
- RESTRICT TO N.E. CORNER OF FRANKS TRACT
- ELIMINATE TOTALLY

STAGING AREAS

	NORTH BETHEL IS.	SUGAR BARGE	HOLLAND TRACT
BEACH			
FISHING PIER			
DRESSING ROOM			
RESTROOMS			
PICNIC AREA			
SNACK BAR			
ICE SUPPLIES			
CAMPING			
GUEST DOCK			
INTERPRETIVE TRAIL			
VISITORS CENTER			
BOAT RAMP			
FERRY/WATER TAXI			
DELTA EDUCATION CENTER			

ANALYSIS

ACCESS - LAND	GOOD	GOOD	ROAD & BRIDGE
ACCESS - WATER	GOOD	GOOD	GOOD
ACCESS - BETHEL ISLAND	GOOD	GOOD	O.K.
SHELTER FROM WIND	YES	YES	YES
CONFLICT WITH RESIDENTS	YES	YES	NO
EASE OF CONSTRUCTION	MARSH AREA	SMALL	GOOD
INTERPRETIVE POSSIBILITIES	GOOD	MIN - IMAL	SOME
POTENTIAL BEACH	NO	NO	YES
SUFFICIENT AREA FOR MULTIPLE USE	MAYBE	NO	YES

ALTERNATIVES MAP

Franks Tract State Recreation Area Optimum Plan

Contra Costa County, California

California Department of Parks & Recreation

Roberts Associates
Landscape Architects & Land Planners

0 1000' 1 Mile 2 Miles

30 ACRES
5

NORTH

STAGING AREA DEFINITION

- Please mark each use which you feel would be appropriate for the three potential staging areas. A use may occur in more than one staging area.

	NORTH BETHEL ISLAND	SUGAR BARGE/ BETHEL ISLAND	HOLLAND TRACT
BEACH			
FISHING PIER			
DRESSING ROOM			
RESTROOMS			
PICNIC AREA			
SNACK BAR			
ICE & SUPPLIES			
CAMPING			
GUEST DOCK			
INTERPRETIVE TRAIL			
VISITOR CENTER			
DELTA EDUCATION CENTER			
BOAT RAMP			
FERRY/WATER TAXI			

C-101772

B. Alternative Locations

Although Franks Tract will be used by those who come to the Area by water, those at the First Workshop agreed that there was a need for access by land, including a focal point that identified for the visitor an entry to the Recreation Area. This entry is called a staging area.

Three potential staging areas were identified:

1. Northerly end of Bethel Island Road.

2. Sugar Barge Area, near the easterly end of Bethel Island.

3. Central portion of the northerly end of Holland Tract.

Each of these locations offers advantages and disadvantages; what are the good and bad features of each location?

Based on their relative advantages and disadvantages, which of the alternative staging areas would be preferred; or, is it possible that more than one staging area would be appropriate under certain conditions? When discussing staging areas, it will be helpful to keep in mind the definition, which is based on the facilities that are included.

1. Northerly end of Bethel Island Road.

2. Sugar Barge Area, near the easterly end of Bethel Island.

3. Central portion of the northerly end of Holland Tract.

4. None of the above.

5. Two or more of the above.

C. Boater Destinations

The Alternatives Map shows possible boater destinations, marked A through F. In some cases, it is intended that these destination areas be constructed as beaches in connection with safety improvements. In other cases, the destination areas would be constructed as sandy islands.

Please discuss the relative advantages and disadvantages of theses alternatives and try to rank them in order of preference.

D. Hunting

Participants at the First Workshop indicated a desire to increase the regulation of waterfowl hunting on Franks Tract. In response to this preference, the Alternatives Map shows a general area at the northeast corner of Franks Tract where hunting would be permitted. It also was suggested at the Workshop that regulations relating to placement and lighting of blinds, and placement of decoys be enforced.

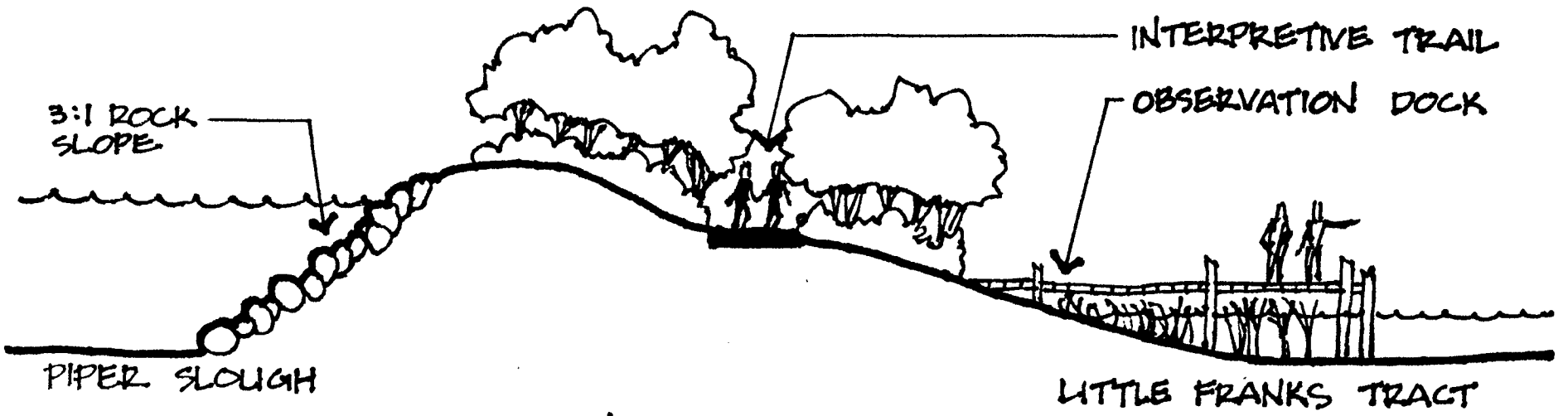
Since hunting season generally is during the off-season for other recreation uses, is the proposed alternative appropriate?

E. Little Franks Tract

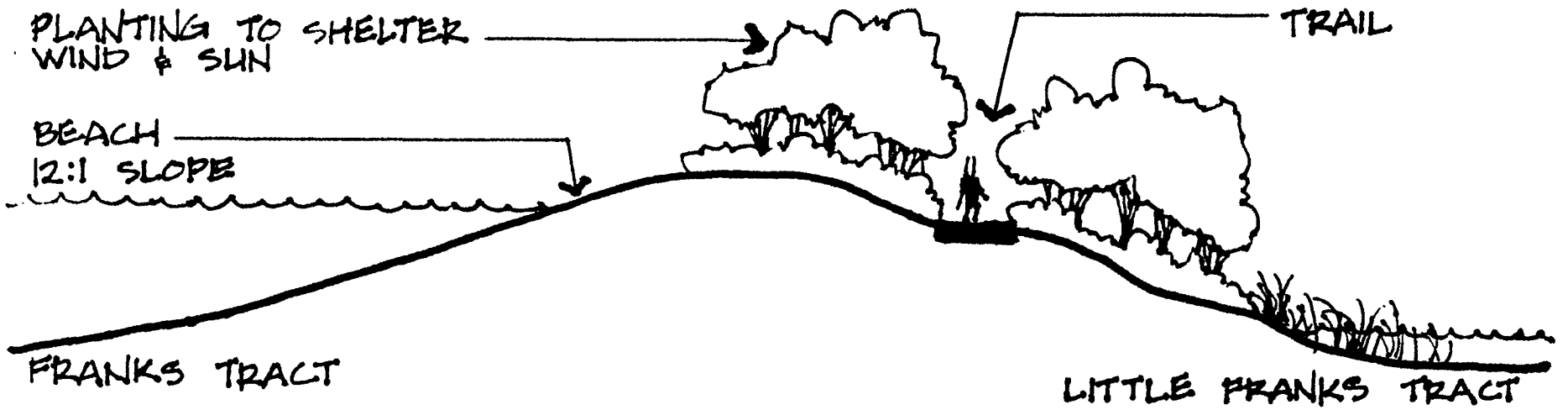
The First Workshop expressed strong support for returning Little Franks Tract to its previous condition as a Nature Preserve. There were mixed feelings about the extent to which recreation uses could be included. The following page illustrates possible levee sections that could be constructed to provide recreation opportunities in conjunction with the nature preserve.

Are the features of these sections appropriate?

Any other suggestions?



LEVEE / INTERPRETIVE TRAIL



LEVEE / BEACH

LITTLE FRANKS TRACT LEVEES

C-101775

Frank's Tract Citizen Participation Planning Workshop Attendees
October 19, 1985, Scout Hall, Bethel Island

Name	Address
Frank Andronico	P.O. Box 475, Bethel Island
David Bartlett	DPR - Brannan Island State Park
Ned Bergevin	4255 Willow Rd., P.O. Box 56, Bethel Island
Barbara Bonnickson	613 2nd St., Brentowod
Regina M. Burke	Lakeview Harbor, Bethel Island P.O. Box 1082
Bob Cane	Brentwood News
Rita Cappola	4229 Willow Rd., Bethel Island
Seth Cockrell	Rt. 1, Box 300, Brentwood
Kevin Cuthbertson	3 Encina Pl., Pittsburg
Daid R. Davis, Architect	P.O. Box 1321, Bethel Island
Helen Ennis	P.O. Box 626, Bethel Island
Richard Ennis	4363 Rose Lane, Concord
Diana Garcia	P.O. Box 1321, Bethel Island
Dorothy Greenley	P.O. Box 214, Bethel Island
Helen Halsey	RD830 Jersey Island, Star Route, Stockton
Ted Halsey	" "
Alvie Hill	P.O. Box 614, Bethel Island
Howard Holmes	Box 346, Bethel Island
John Honeggn	3893 Willow Rd., Bethel Island
Filip Johansson	66 Mozden Lane, Pleasant Hill
Pearl Kamer	570 Kingsley, Palo Alto
Ed Karrer	4814 N. Stone Rd., Bethel Island
Emma Lakund	P.O. Box 982, Bethel Island
Milton Lakund	" "
Bob Linderer	P.O. Box 623, Bethel Island
Jack McNamara	BIMID
Daniel Miller	P.O. Box 860, Bethel Island
Kenneth T. Puipps	3191 Stowe Rd, Bethel Island
D. Rooke	3767 Willow Rd., Bethel Island
M. Rooke	" "
Dick Sandy	P.O. Box 145, 4393 Willow Rd., Bethel Island
Mel Smith	P.O. Box 809, Bethel Island
Phil Soother	4229 Willow Rd., P.O. Box 1067, Bethel Island
Pricilla Vidisky	P.O. Box 580, Bethel Island - Beacon
David Wahl, Assist. Fire Chief	P.O. Box 623, Bethel Island
Ralph Wallace	6965 River View Dr., Bethel Island

Staff:
Dennis Beardsley
Rosemary Cameron
Lew Crutcher

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Appendix B: Delta Outdoor Recreation Survey

RECREATION SURVEY

A document prepared for the State of California Department of Water Resources, Delta Outdoor Recreation Survey, March 1980, Edilberto Z Cajucom, Ph.D. and Associates, contains surveys and projections of recreation use of the Sacramento-San Joaquin Delta. The study area for the survey included the legal boundary of the Delta, as defined in Section 12220 of the Water Code, excluding urban areas. The report includes descriptions of recreationists' demographic characteristics, their recreation experience, types of recreation activity, complaints, their perception of future use of the Delta, and estimates of current and future use. Following is a brief description of the survey conclusions that may be relevant to Franks Tract.

RECREATIONISTS

Visitors responding to the survey averaged 40-44 years of age, most were married with household size of 2-3 persons. Most were employed full time with 40% having managerial/professional types and 31% with skilled/clerical occupations. Respondents were well educated with 40% having gone to college; over 45% earned more than $20,000. Over half had weekends off.

Delta residents surveyed averaged 45-49 years of age, most were married with households of 2-3 persons. Almost one-half were employed full time and 30% were retired. Of those employed, 40% were managerial/professional and 24% were skilled/clerical. Most were high school educated and 40% reported incomes above $20,000. Thirty percent had weekends off and 20% were off all week.

Sacramento contributed 12% of the visitors, Stockton 11%, Antioch 7%, Concord 5%, and San Jose and Pittsburg 3%. The remaining 62% of the visitors came mainly from cities in the San Francisco Bay Area but no city contributed as much as 3% of the total. Less than 8% drove more than 150 miles to the Delta; 48% drove less than 50 miles. One-third were from Contra Costa County, 16% each from Sacramento and San Joaquin Counties, 10% from Alameda County and 10% from Santa Clara and San Mateo Counties combined.

Over 75% of resident recreationists were from Sacramento and Contra Costa County; about 5% were from San Joaquin County. Only 13% of the visitors said their trip was part of a longer trip. For most visitors their trip to the Delta was one to three days.

The Delta appears as a family oriented recreation area. About 70% of the visitors and 64% of the residents were in a family related group.

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More visitors and residents fished for catfish and striped bass than any other type of fish. Other popular fish were sturgeon, black bass and salmon. Fowl most often bagged was pheasant, with ducks second. Overnight camping occured equally on shore and on boats.

When asked why they visited the Delta, a wide variety of responses were given. The most common (21%) was convenience/closeness. Other responses were fishing (6%), atmoshere (4%), and boats moored in the Delta (4%).

Seventy five percent of both visitors and residents recreated in general areas; the most popular specific area was Franks Tract/Bethel Island for both visitors (24%) and residents (33%).

The Delta is felt by visitors to be a good place for outdoor recreation mainly because of fishing (15%) and atmosphere (11%). Residents mentioned water (18%), atmosphere (14%), fishing (12%), and convenience/closeness (11%).

Almost 30% of visitors and residents had no gripes about the places they used for outdoor recreation. Visitors complained about the dirty water and debris, crowded conditions and speed boating conflicts. Residents complained most about crowded conditions and speed boating conflicts.

ESTIMATED TOTAL RECREATION USE

Estimated recreation days for the 1977-78 period was 11,895,384. This was arrived at by summing the estimated resident days with those generated by vehicle activity (visitors). This estimate was used to calculate the number of recreation days for each activity, based on the number of residents and visitors that engage in each activity, according to the survey.

Forecasts of future recreational use of the Delta were made based upon assumptions of population of counties adjacent to the Delta. Based on a 1985 population of 5,983,000, total recreation days would be 12,883,095. In 1990, estimated population of 6,319,600 would generate 13, 607,890 recreation days.

The average group size for visitors was 5.23 and 12.5 for resident recreationists. Almost half of the visitor groups were 3 or less persons; of the resident groups, about 12% were 3 or less in size.

ACTIVITIES

Visitor and resident recreationists were asked which activities they and their group engaged in. The following table summarizes the reponses. It should be noted that more than one activity may have been checked so the percentages do not total %100.

ACTIVITY	% INDIVIDUALS		% GROUPS	
	visitor	resident	visitor	resident
Motor Boating	47.6	68.1	n.a.	n.a.
Fishing	47.5	69.1	28.2	24.7
Relaxing	38.6	67.3	24.3	19.7
Driving for Pleasure	36.2	53.4	14.1	18.4
Sightseeing	33.1	48.0	20.2	17.5
Overnight Camping	26.2	30.5	n.a.	n.a.
Picnicking	22.9	45.3	16.0	19.7
Swimming	21.1	52.9	17.2	21.1
Water Skiing	14.7	30.9	14.5	20.2
Photography	10.1	23.8	5.3	9.0
Sailing	4.2	9.4	3.1	4.5
Bicycling	3.6	30.5	3.6	11.7
Canoe/Kayak/Rowing	2.5	12.6	2.4	5.4
Dirt Bike	2.5	10.3	2.4	4.5
Hunting	2.0	19.7	0.7	5.4
Snorkling/Scuba	0.9	1.8	0.9	0.9
Flying	0.9	6.7	0.9	1.3

n.a. = not asked

Appendix C: Contributing Factors to Levee Failure

Structural Failure

Levee foundation materials in the central Delta vary; they include clay, silt, sand and peat. In general, the inorganic materials provide adequate foundation conditions, but the peat has an extremely low density, is highly compressible and is structurally weak. Saturated sands and silts may be subject to liquefaction, resulting in decreased shear resistance. Liquefaction involves a temporary transformation of the material into a fluid mass. Water pressure against the levees and the weight of the levee can cause this low-strength foundation material to move laterally, causing a levee failure.

Differential foundation settlement may be another cause of levee failures, particularly where levees are founded on peat that abuts old, narrow river channels or sloughs filled with clay and sand. The clay-, silt- and sand-filled channels consolidate less compared to the surrounding peat. Cracks may develop in the levee above the old channel sediment-peat contacts, causing levee failure. Since 1950, incidents of levee failure due to foundation or levee instability have doubled. Structural failures are often preceded by a localized partial failure involving 200 to 1,000 feet of levee. Partial failure

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includes settlement of the levee and the formation of cracks and sinkholes in the landward levee slope. Unless repair is immediate, the condition may become worse until the levee completely fails.

Caution must be used in placing extensive new fill, particularly saturated dredged material, on levees composed of or founded on organic soils. The additional weight, especially when the levees are saturated from winter rains or high water levels, can increase the chances of failure.

Overtopping

Construction of upstream reservoirs since the middle 1940's has reduced the frequency of levee overtopping. Although in recent years, failure resulting from overtopped levees has been controlled to a large degree; the continual subsidence of a levee requires periodic application of additional material to its crown and landward slope to maintain adequate freeboard. Another problem that may contribute to overtopping is the abnormally high tides that have recently been observed. Some preliminary analysis of the abnormal tide situation has been made, primarily to determine whether the factors involved are of a temporary or permanent nature. Indications are that there are some of each.

There are, however, two factors believed to be contributing to Delta tide levels being higher than long-range forecasts generally indicate that may well be permanent. They are deep-seated subsidence in the vicinity of the Rio Vista tide gage and increases in average ocean levels at the Golden Gate. Some tentative studies of the latter indicate a 50-year trend of slowly rising ocean levels of 0.08 inch per year. Deep-seated subsidence at the Rio Vista gage is difficult to determine with assurance because of questions about the stability of nearby benchmarks. A very preliminary study indicates a deep-seated subsidence rate of about 0.2 inch per year. Whether this is a

localized rate or typical of larger areas of the Delta is not known. Subsidence in the Rio Vista area may be partly attributable to natural gas extraction in that vicinity.

Subsidence

Subsidence contributes to structural failure. As subsidence of peaty soils in the interior of the islands continues, water pressure on the levees increases. This sometimes causes a section of levee or its foundation to fail, with subsequent flooding of an island.

Seepage

The elevation difference between the higher channel water surface and the lower ground surface of many Delta islands causes a continual seepage of water through the levees from the channels to the interior of the islands. Levee instability can result from saturation and from removal of levee material by water seeping through the levee.

Rodent Burrows

The Delta provides abundant habitat, including marshlands, berms and levees for rodents. Rodent burrows, particularly those of beaver and muskrat, can threaten the integrity of a levee. Burrows in levees can weaken the levee section and contribute to levee failure by increasing the potential for "piping" -- the washing away of levee material by seepage through a levee. Vegetation on levee slopes makes it difficult to detect rodent burrows. In some areas where excessive vegetation (such as dense stands of bamboo or blackberry vines) occur, it is impossible to detect such burrows. Moreover, properly managed vegetation can reduce rodent problems.

Erosion

The waterside slopes of Delta levees are subjected to varying erosive effects from channel flows, tidal action, wind-generated waves and boat wakes. The accelerated growth in recreational use in recent years by pleasure boaters, anglers and water skiers has intensified erosion.

Erosion is often alleviated by placing rock revetment on the waterward levee slope, usually with rock hauled in by barge from outside the Delta. Chunks of concrete or other material obtained locally are sometimes used. Placement of revetment can cause, as well as alleviate, levee problems. The rock does not always remain in place on the slopes, thus causing unexpected erosion if not repaired. In addition, the added weight of rock can cause subsidence or slumping of levee fill or overload the foundation and thereby contribute to a structural failure.

Vegetation on levees may be desirable or undesirable with regard to erosion. Certain types of vegetation (such as tules) on levee slopes can help to slow erosion. However, the continual wave action at normal water levels frequently undercuts inappropriate types of vegetation at the waterline, and progressive caving eats into the levee slope. In some places, dense stands of vegetation (bamboo, blackberry vines, etc.) can also screen the view and make it difficult or impossible to detect problem areas.

Other methods of erosion control that have been considered include timber mattresses, bulkheads, concrete paving, grouted riprap, sheet piling and fabrics such as open nylon and vinyl mats and rayon filter materials. For most levee erosion situations, nothing has been found that is as effective as rock revetment.

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Appendix D: Delta Fish & Wildlife Habitats in Franks Tract State Recreation Area

Freshwater Marshes. Tidal marshes form where deposits of sediment reach within one meter of the average water surface in tidal sloughs and channels, frequently along the toe of levees and on remnant berms. California tules (Scirpus californicus) and common reed grass (Phragmites communis) typically initiate the process of marsh development. Freshwater nontidal marshes have formed behind levees in the interior of some islands. Cattails (Typha sp.), common reed grass, several species of tule or bulrush (Scirpus sp.) and several other plant species are typical of these marshes. Both types of marshes occur now as small remnants of their historic extent.

Channels and Open Water. Numerous natural and dredged tidal channels connect the San Joaquin and Sacramento Rivers with other channels to form an extensive network of waterways, lined by man-made levees which are managed primarily for flood protection.

Submerged Island. Several islands, such as Frank's Tract and Little Frank's Tract, are now submerged as a result of levee breaks, forming shallow lake-like bodies of open water. Remnants of their encircling levee systems remain in varying states of disrepair.

Riparian Woodland. Where "permissive" management practices or neglect have permitted trees to remain either on berms and outer levee banks, or inside the levees, trees over three meters tall such as cottonwood (Populus fremontii), western sycamore (Platanus racemosa), white alder (*Alnus rhombifolia) and willows (Salix sp.), and understory plants such as blackberries (Rubus proerus), buttonbrush (Cephalanthus occidentalis), wild rose (Rosa spp.) and mugwort (Artemisia douglasii) form dense riparian woodland and thickets.

Riparian Shrub-Brush. This habitat is typical on levees which are maintained (e.g. cleared) on a 5-10 year cycle. It is characterized by deciduous broad-leaved woody growth predominantly less than 6 meters tall, including many of the understory species of riparian woodland dominated by willow. The habitat can be considered successional to riparian woodland if it were permitted to develop without disturbance.

Brushy Riprap. When cleared and riprapped banks are maintained on a more frequent basis, a low-diversity vegetation of blackberries, occasional willows, and other weedy species become established, providing limited habitat resources.

Herbaceous Banks. Where levee banks are annually cleared in maintenance, woody vegetation cannot establish. Grasses and herbaceous plants predominate, including many introduced weeds.

Unvegetated Riprap. Recently deposited or cleared riprap levee banks are devoid of plants, but provide some fish and crayfish habitat below the waterline.

Channel Islands. These islands consist of naturally developed islands within or adjacent to channels, and remnants of levees such as those that once surrounded FRank's tract. Vegetation may consist of emergent marshland habitat containing no levee, or it may be made up of a mixture of marshland with riparian shrub-brush, riparian woodland, and brushy riprap. Islands that contain primarily thick growth of marsh habitat provide important habitat for the black rail, a bird species classified as rare by the State of California and as a candidate for endangered classification by United States fish and Wildlife Service.

Cultivated Lands. The predominant habitat on the Delta islands today is agricultural. Vegetation includes a variety of crops. Crop stubble and forage crops, particularly when deliberately flooded, provide fall and winter habitat for large numbers of migrating waterfowl, providing a partial substitute for the historic wetlands that once covered large parts of the Delta.

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Appendix E: Workshop 2 Summary

ASSESSMENT OF ALTERNATIVES

Based on the conclusions reached at the First Workshop, the Planning Team formulated several alternatives to be considered for Frank's Tract State Recreation Area. These alternatives, discussed at a Second Workshop on November 7, 1985, include access/staging areas, wave-blocking islands with beaches, and a range of facilities and services to be considered. The accompanying map illustrates alternatives that were discussed and brief conclusions of that discussion.

STAGING AREA DEFINITION

Before determining locations for staging areas, workshop participants defined a staging area by listing a variety of facilities that could be included. It is assumed that a staging area would be public property, accessible to all persons and, in addition, would include or exclude the following:

BEACH- No consensus. It was felt that a beach at Bethel Island would be difficult and more possible at Holland Tract.

FISHING PIER- Supported by most participants .

DRESSING ROOM/RESTROOMS- Supported as combined facility.

PICNIC AREA- Strongly supported.

SNACK BAR- Strongly opposed.

ICE & SUPPLIES- Strongly opposed.

CAMPING- Some support for day use only; opposition to overnight camping based on the feeling that there are adequate private facilities.

GUEST DOCK- No consensus; opposition to long-term berthing based on feeling that private facilities are available. Some support for docks in conjunction with public launching.

INTERPRETIVE TRAIL- Supported if enhances use of natural areas.

VISITOR/EDUCATION CENTER- Support for small facility.

BOAT RAMP- Supported; suggest ramp be wide enough to launch duck blinds.

FERRY/WATER TAXI- Supported, primarily to serve Little Frank's Tract.

ALTERNATIVE LOCATIONS

Although Frank's Tract will be used by those who come to the Area by water, those at the First Workshop agreed that there was a need for access by land, including a focal point that identified for the visitor an entry to the Recreation Area. This entry is called a staging area.

Three potential staging areas were identified and evaluated.

Based on their relative advantages and disadvantages, and keeping in mind the definition, which is based on the facilities to be included, workshop participants favored two staging area locations:

1. Northerly end of Bethel Island Road.

2. Site at a portion of Holland Tract adjacent to Frank's Tract.

3. Sugar Barge Alternative was rejected as unsuitable.

BOATER DESTINATIONS

The Alternatives Map shows possible boater destinations, marked A through F. In some cases, it is intended that these destination areas be constructed as beaches on the Lake side with rock-faced bank on the channel side; in other cases, the destination areas would be constructed as sandy islands.

Although not unanimous, there was support for all alternative locations. Most strongly supported were those that increased the safety of Bethel Island. Specific comments are noted below:

AREA	COMMENT
A	Good location but close to homes; take care to provide vegetation for shade, screening, scenic quality and to help stabilize sand on the Lake side.
B	Take care to avoid potential harm to natural area caused by too much human use.
C	Existing small beach, may be too windy for good location.
D	May be too windy and may be hard to keep sand in place
E	Good fishing area
F	Existing small beach, very shallow area

HUNTING

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Participants at the First Workshop indicated a desire to increase the regulation of waterfowl hunting on Frank's Tract. In response to this preference, the Alternatives Map showed a general area at the northeast corner of Frank's Tract where hunting would be permitted. It also was suggested at the First Workshop that regulations relating to placement and lighting of blinds, and placement of decoys be enforced.

Consensus of the Second Workshop is that hunting should be permitted in Frank's Tract except within 2,000 feet of Bethel Island and Little Frank's Tract. That is the current regulation. There also was strong support for increased observance of regulations regarding placement, lighting and removal of blinds.

LITTLE FRANK'S TRACT

The First Workshop expressed strong support for returning Little Frank's Tract to its previous condition as a Nature Preserve. There were mixed feelings about the extent to which recreation uses could be included.

The Second Workshop reached the same conclusion, stressing that human use of the area should be subordinate to its status as a Nature Preserve.

Appendix F: Beach Slope Related to Grain Size

Studies* by the U.S. Corps of Engineers indicate that the slope of the beach foreshore tends to increase as the grain size of sand increases. The Corps found, that for a constant grain size, the slope of the foreshore usually has a low value on Pacific beaches, an intermediate value on Atlantic beaches and a high value on Gulf beaches. The Corps concluded that the variation in foreshore slope from one region to another appears to be related to the mean nearshore wave heights with the more gentle slopes occurring on coasts with higher waves. The California coast experiences mean monthly wave heights ranging from two feet in the summer months to about three feet in the winter months. Data collected by the Corps for the West Coast shows the following relationships between median grain size and slope:

Median Grain Size	Foreshore Slope (H:V)
0.3 mm	20:1
0.4 mm	13:1
0.5 mm	10:1
0.6 mm	9:1

The EBRPD has been surveying the Robert W. Crown Memorial State Beach Project since 1983 and the slopes indicated by x-sections prepared by the EBRPD indicate that the foreshore slopes are fairly gentle (about 15:1). The beach at this project was subjected to winter storms in 1983 and consequently, the surveys reflect the effects of high eroding waves which tend to produce more gentle foreshore slopes than low accretionary post-storm waves.

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* Corps of Engineers, "Shore Protection Manual", 1977.

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Appendix G. Letter from the California Department of Fish & Game

The consulting team acknowledges the comments and concerns of the California Department of Fish & Game (DFG) as presented in their letter dated December 4, 1985 (see copy of letter below). However, in the spirit of the broad objective of this plan which aims to provide environmental protection while also protecting lives and property and providing recreation for the public, the following comments are made (numbers and letters refer to the DFG letter below):

1. Care should be taken with the definition of berm islands as opposed to channel islands. Unleveed channel islands are important and sensitive habitat areas. They occur outside of the State Recreation Area boundary and this plan does not recommend their use for recreation. Berms, on the other hand, are remnants of the old levee system which surrounded Frank's Tract and they have varying degrees of habitat value. The guidelines given on page 48 above should be followed in areas to be used for boat-in-destinations and areas to remain as natural habitat.

2. We concur that wildlife habitat is the first priority on Little Frank's Tract. However, limited and controlled human access for educational and scientific purposes will not harm the habitat.

a. The Bethel Island access point is planned as a low intensity day use area providing only interpretive exhibits and a ramp for the hand-carrying of canoes. Human disturbance of Little Frank's Tract will be lessened thru management of the area; limiting the number of people allowed on Little Frank's Tract at any one time and restricting the type of uses allowed on Little Frank's Tract.

b. Wooden boardwalks provide access to and an intimate experience of the marsh while limiting such access to controlled points.

c. Canoe access is important to the educational study of Little Frank's Tract and guided canoe trips for educational purposesoccurred for a decade before the Tract flooded without apparent harm to wildlife. As long as canoes are brought in by the groups and these groups are led by approved guides, the environment should be protected.

A prerequisite to all of these recommendations is acknowledging that the wildlife values of Little Frank's Tract are of paramount importance. Use of the environment and its effect on wildlife should be continually monitored.

STATE OF CALIFORNIA—THE RESOURCES AGENCY GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF FISH AND GAME
REGION 2
1701 NIMBUS ROAD, SUITE A
RANCHO CORDOVA, CALIFORNIA 95670

(916) 355-7010

December 4, 1985

Mr. Dennis Beardsley
East Bay Regional Park District
11500 Skyline Boulevard
Oakland, CA 94619

Dear Mr. Beardsley:

The California Department of Fish and Game has reviewed the "Optimum Plan, Franks Tract State Recreation Area".

The objective of the optimum plan is to provide protection of life and property from flood damage while enhancing natural habitat and providing recreation. In general we concur with this concept and wish to use this opportunity to add our input relative to enhancement and protection of fish and wildlife habitat. Following are our recommendations:

1. Berm or Channel Islands

   The Department regards berm islands throughout the Delta as one of the last vestiges of native Delta riparian habitat. Encroachment upon these habitats will seriously erode their value to wildlife. We strongly oppose the development of recreational facilities on existing berm or channel island within or surrounding Franks Tract.

   We would, however, be in favor of development of recreation facilities, boat-in destination etc., on newly created "wave-blocking" islands as mentioned in the draft plan.

2. Little Franks Tract

   We concur with the draft plan's recommendation that Little Franks Tract be restored as a fresh water marsh. However, if Little Franks Tract is to provide high quality wildlife habitat, wildlife use must receive a first priority consideration in any planning efforts.

   Some of the visitor uses which are incompatible with wildlife include:

   a. The Bethel Island staging area. This staging would serve to increase human disturbance on Little Franks Tract.

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b. Wooden board walks which access marsh areas.

c. Canoe access to the interior of Little Franks Tract.

A significant opportunity exists to increase Little Franks Tract's value to nesting wildlife. Nearby Grizzly Island State Waterfowl area has increased nesting success by use of a few simple management techniques. It is possible that Little Franks could be similarly enhanced for a variety of bird species.

In summary, we recommend that wildlife be given first priority in planning future uses for Little Franks Tract.

Thank you for the opportunity to review the Draft Optimum Plan. If we can be of further assistance please feel free to contact me at 355-7010.

Sincerely,

Pat Perkins
Wildlife Management Supervisor

C-101797

Appendix H. Bibliography

Bethel Island Area R/UDAT Report: Community and Response. American Institute of Architects, 1985.

Delta Action Plan. Five Delta Counties-including Technical Supplements: Delta Advisory Planning Council. 1976.

Delta Environmnetal Advisory Committee: Position Papers. 1973-77.

Delta Fish & Wildlife Protection Study. 1961 et seq. (DFG) Ecological Studies of the Sacramento-San Joaquin Estuary: 1961-1971; other reports.

Delta Levee Investigation. 1983. Department of Water Resources and Corps of Engineers.

Delta Master Recreation Plan. 1966, 1973, rev. 1976. Resource Agency Plan Task Force.

Delta Outdoor Recreation Survey. Edilberto Z. Cajucom and Associates, State of California. Department of Water Resources, 1980.

Delta Waterways Use Program. 1976. Resources Agency Plan Task Force.

Plan for Improvement of Delta Levees. 1975. (DWR Bulletin #192.)

Sacramento-San Joaquin Delta, California: Draft Feasibility Report and Draft Environmental Statement. U.S. Army Corps of Engineers. 1982.

Sacramento-San Joaquin Delta Environmental Atlas. 1978. Corps of Engineers, Sacramento District.

Sacramento-San Joaquin Delta Wildlife Habitat Protection and Restoration Plan. 1980. Madrone Associates (cf. ESA) for California Department of Fish and Game.